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PROTEIN HYPERSENSITIVENESS AND ITS IMPORTANCE IN THE ETIOLOGY OF DISEASE

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Anaphylaxis has for many years received study by those who have investigated the problems of immunity, but only within recent years has it attracted the attention of clinicians. For the problem of anaphylaxis, developed first purely by reason of its great scientific interest, has come to have, through its analogies at least, an important bearing on clinical medicine, and thus it is that considerable attention has been directed of late to the so-called idiosyncrasies or states of hypersensitiveness in man while a still more recent problem has to do with the serious effects that follow intoxication by the derivatives of native proteins.

The first serious consideration of the subject of hypersensitiveness in man really began in 1873, with the interesting observations of Blackley,[1] who studied the effect of pollens on hay-fever sufferers. He showed quite conclusively that the application of grass pollens to the nasal mucous membrane or the conjunctivae caused an attack of hay-fever in persons subject to this disease, even though the application was made in midwinter, and he demonstrated further that when the pollen was rubbed into the scarified skin, a large urticarial wheal formed at the site of inoculaiton. Evidence was at hand, therefore, to show that hay-fever patients possessed an unusual susceptibility to pollens that for most people were harmless.

With the introduction of diphtheria antitoxin, in 1894, opportunities were afforded to observe the effect of the introduction of foreign protein in man, and the studies of von Pirquet and Schick [2] on serum disease, which indeed antedated much of the earlier work on experimental anaphylaxis, threw considerable light on this subject. One point to which von Pirquet and Schick called attention was the lasting alteration of the tissues, which follows the first parenteral introduction of horse serum in man. This showed itself in an altered reaction of the tissues to a second injection of horse serum, which might call forth one of the two types of response, either the so-called accelerated reaction or the immediate reaction. Of particular interest to us is the immediate local reaction at the site of inoculation, which is characterized by the formation of an urticarial wheal. Bearing on the same point are the early observations of Lucas and Gay,[3] who described a local reaction, not unlike that which had been noted by Arthus in rabbits, following successive subcutaneous injections of horse serum in the skin of children receiving prophylactic doses of horse serum at three-week intervals. Finally, Moss,[4] in 1910, drew attention to the value of the immediate cutaneous reaction in determining the presence of sensitiveness to horse serum in persons who had previously been injected; and since then there have developed the various methods, now so widely employed, of applying cutaneously or intracutaneously proteins or extracts of various substances, such as foods, pollens and animal hairs, to determine the presence or absence of a local skin reaction in patients who are suspected of being hypersensitive to such substances.

Indeed, for many years, so-called personal idiosyncrasies toward foods, odors and drugs have been widely recognized, though until recently they often have been looked on merely as medical curiosities. It has now been found however, largely through the work of Cooke, Schloss, Talbot, Koessler, Rackemann and others, that these idiosyncrasies have a basis in fact and that they may often be explained as an immediate reaction toward some substance to which the individual has, in some way, become hypersensitive.

HAY-FEVER

The simplest and clearest cut form of this type of idiosyncrasy or hypersensitiveness is encountered in hay-fever; for it has now been fully demonstrated that when certain pollens touch the conjunctivae or the mucous membranes of the nose or throat of these individuals, sneezing, lacrimation, and suffusion of the conjunctivae and mucous membrane of the eye and nose take place, so that an attack of hay-fever is perfectly reproduced. Moreover, the subcutaneous injection of minute quantities of extracts of the specific pollen may cause the same symptoms, while the application of extracts of the pollen to the skin will cause a reaction characterized by the formation of an urticarial wheal.

In the East, autumnal hay-fever, the commonest form, is caused most often, as is well known, by ragweed (*Ambrosia artemisiaefolia* and *trifida*); and while the spring hay-fevers are due usually to the grasses (*Gramineae*), such as timothy (*Phleum pratense*), red top (*Agrostis alba*) and June grass (*Poa*

1. Blackley: Hay-Fever, Its Causes, Treatment and Effective Prevention, Experimental Researches, London, 1873.
2. Von Pirquet and Schick: Die Serumkrankheiten, 1905.
3. Lucas and Gay: J. M. Res. **20**: 251, 1909.
4. Moss, W. L.: A Cutaneous Anaphylactic Reaction as a Contraindication to the Administration of Antitoxin, J. A. M. A. **55**: 776 (Aug. 27) 1910.

pratensis), in rare instances the pollen of flowering shrubs and trees may be responsible for the symptoms. According to Selfridge,[5] who with Professor Hale has made an extensive study of the plants producing windborne pollen from Mexico to Canada, and from the Pacific to Colorado, the majority of cases of hay-fever in this region are due to *Gramineae*, or grasses, and they occur in the spring. These grasses, such as the broncho grass and canary grass, belong to quite different species from the hay-fever grasses of the East.

In the case of true hay-fever, the occurrence is seasonal and is associated with the pollination of plants; but there is another and very interesting condition presenting the same symptoms, as hay-fever, but without seasonal variation. We have seen a number of patients who have been afflicted with what they term continuous "rose cold," or with attacks of periodic sneezing, lacrimation and coryza. It is perhaps most frequently encountered in women, and in some instances has been shown to be caused by the powder or sachet which they have used and that has usually contained orris or corn starch, to either one of which hypersensitiveness may be shown. When the patients ceased using the powder, the symptoms disappeared immediately.

ASTHMA

The next group of patients that has perhaps been most carefully studied is that of the asthmatics, and it will be remembered that the incentive for these investigations came from the early experiments of Auer and Lewis, in 1910, who showed that bronchospasm was one of the characteristic results of anaphylactic shock in the guinea-pig. The analogy to an asthmatic condition was striking, and suggested to Meltzer an explanation for the origin of the disease in man. Studies made on large groups of such patients have now disclosed the fact that about 50 per cent. are indeed hypersensitive to some protein substance and give definite skin reactions to the hairs of animals, the feathers of birds, the pollens, foodstuffs or grains, or to bacteria. Thus, Walker,[6] in a group of 400 patients, found that 48 per cent. showed such hypersensitiveness. At the Presbyterian Hospital, where Dr. Mackenzie, Dr. Leake and I have been studying cases of asthma and hay-fever, an analysis of one series of 127 patients has shown that seventy-five, or 59 per cent., have given skin reactions to one or the other or a combination of extracts of these substances.[7] The rather high incidence of positive reactions in this series may depend on the fact that a fair proportion of these patients suffered from a combination of asthma and hay-fever. Of fifty-nine patients giving positive reactions, twenty-five gave reactions to pollen extracts, fourteen to epidermal extracts, twenty to food extracts and twenty-eight to bacterial extracts.

In many patients, the history, the skin reaction and the subsequent course of the disease after treatment all point to the fact that the material giving the skin reaction is the specific cause of the disease. A single instance will illustrate this:

A Bohemian woman, aged 49, had been under treatment at the dispensary of the Presbyterian Hospital during five years, for asthma. Many remedies had been tried without noticeable effect. In April, 1919, she was made the subject of special study by Dr. Mackenzie.

There was no history of asthma, urticaria, angioneurotic edema or eczema in the members of the family. She had never had hay-fever or any of these diseases herself. Her asthma had started nineteen and one-half years ago. Since that time she had had almost continuous asthma. The attacks were more severe and frequent during the winter, but she had never been entirely free from symptoms. Between attacks, she had cough and expectoration. She thought the attacks were brought on by dry weather, dust and exertion. She had noticed that whenever she cleaned a chicken, itching of the hands followed. When she ate eggs, she had a tingling sensation in the mouth. Her husband had three canaries, and whenever she cleaned the cage, an attack of asthma followed. The patient's home was half a block from a chicken market, and she noticed that every time she went there, or even passed by, an attack of asthma came on. She had never associated attacks with any article of her diet. No joint pains or gastro-intestinal symptoms had accompanied any of the paroxysms of asthma.

Except for hyperresonance over the chest, prolonged expiration and scattered musical râles, there was little to be found on general examination. Skin tests were made with a number of substances, and it was found that she gave marked reactions to extracts of chicken feathers and chicken meat, to goosefeathers, and to both egg white and egg yolk.

All pillows and mattresses containing feathers were removed from her room, and a course of injections of chicken feather extract was instituted. After eight injections, the patient was free from asthma. In all, she received twenty-one injections, the largest dose being 0.5 c.c. of a 1:500 dilution. It is now ten months since she has had asthma, even though her pillows and feather bed have been returned to her.

In other instances, the etiologic connection between the substance producing the skin reaction and the attacks of asthma is not, at first sight, so apparent. Undoubtedly, this is sometimes due to the fact that the skin reacts to several substances, any one of which may be the cause of the asthma; and without some clue in the history, it is often difficult to determine which of the reactions is the important one or whether any of them have been produced by the actual cause of the disease.

In one of our asthmatics, a boy, aged 6, violent cutaneous reactions were obtained to the serums of many domestic animals. It was thought therefore, that his asthma was probably caused by inhalation of the hairs and epidermal dust from dogs and cats. Even though he was treated most carefully from this point of view, the asthma was not relieved. A further study showed that he gave a skin reaction, though only after intradermal injections, to egg white. Eggs were therefore eliminated from his diet, and the asthma ceased immediately. He was then treated by Dr. Rackemann, by the feeding of dried egg white in capsules, beginning with 1 mg. and increasing gradually until he took one cooked egg daily. He has been able now to eat this amount of egg for four years without the reappearance of asthma.

It is, therefore, difficult at times to determine in any given case which of the skin reactions that have been obtained are or are not important in determining the etiology of the condition.

POSSIBLE ETIOLOGIC FACTORS

In patients who do not react to extract of pollens, animal hairs or food, infections must always be taken into account. The association of asthma with infections of the accessory nasal sinuses is not uncommon, and we have seen several patients in whom drainage of a chronic sinusitis was followed by great relief of the asthma. The same is probably true of cases of bronchiectasis, and possibly chronic bronchitis.

5. Selfridge, G.: California State J. Med. **16**:164 (April) 1918.
6. Walker, I. C.: Studies of the Cause and the Treatment of Bronchial Asthma, J. A. M. A. **69**:363 (Aug. 4) 1917; J. M. Res. **36**:423 (July) 1917; M. Clin. N. America **1**:1177 (Jan.) 1918; Oxford Medicine **2**:115; Am. J. M. Sc. **157**:409 (March) 1919.
7. Mackenzie, G. M., and Leake, W. H.: J. Exper. Med. **33**:601 May) 1921.

Unfortunately, there is not time to discuss the interesting idiosyncrasies which result in attacks of urticaria, eczema, various forms of dermatitis, occasionally in angioneurotic edema, and the gastro-intestinal disturbances that are particularly common in children, and that are so often brought on by taking eggs, milk, cereals and other varieties of food. Many of these diseases are combined in the same individual.

It is very common to learn that the patient as a child had eczema, possibly combined with attacks of urticaria, and that at the age of 15 or 16 hay-fever had appeared for the first time, and had been continuous, becoming a little worse each year, until one year the patient suddenly had had, during the hay-fever season an attack of asthma, which repeated itself year after year. Or, in another type, the patient as an infant may have vomited the first time it was given egg. A second and similar experience convinced the parents that the egg was poison to the child, and this food was therefore eliminated from the diet. A few years later, eczema or urticaria developed, and it persisted as a recurring and chronic affection for years. In such instances, it may be found that, though eggs themselves are eliminated from the diet, the patient eats many foods of which eggs form an ingredient. In a third group, urticaria, eczema and asthma may alternate through childhood and terminate in persistent asthma during middle life. The very frequent association of these diseases was well illustrated in our series of cases in which 30 per cent. of the asthmatics and hay-fever patients gave a history of eczema, urticaria or angioneurotic edema.

Though the symptoms of these different patients may vary according to whether they inhale, ingest or rub the substance to which they are hypersensitive on their skins, there are certain general principles that hold for the entire group, and to some of these it is necessary to draw attention.

If one measures the intensity of the skin reaction, it can be determined that some of these patients react more violently and to greater dilutions of the proteins than do others. As a rule, it is asthmatics and hay-fever patients that give the most pronounced and violent cutaneous reactions. It is also in the cases of horse asthma that injections of antiserums, such as diphtheria antitoxin, have occasionally caused alarming symptoms and, in a few unfortunate cases, death. In cases of eczema, occasionally fairly well-marked cutaneous reactions may be obtained, but very rarely can one detect any definite reaction by this method in the patients suffering with urticaria. Indeed, in the latter group, skin reactions are much less frequently obtained than in the asthmatics and hay-fever patients, and often only by using the intracutaneous method of performing the test.

Another variation is observed in the time interval between the application of the substance to the skin and the appearance of the wheal and erythema. In most instances this is very prompt, and the reaction commences within from ten to fifteen minutes after the test is made, reaching its height within one-half hour. Occasionally, however, delayed reactions are encountered, appearing first from two to six or even twelve hours after the test is made. These delayed reactions we have found to be most common in the patients with urticaria.

Indeed, the intensity of the reaction may vary on different occasions, Schloss [8] has seen positive skin reactions appear immediately before the onset of symptoms and disappear shortly thereafter. It has likewise been noted that the intensity of the reaction may diminish after treatment and recovery, though we have not found this by any means constant. And, finally, attention must be drawn to the fact that occasionally, in making skin tests on long series of normal persons, an individual who is perfectly well, and gives no history of any of the diseases to which we have referred, will show a definite and repeated though perhaps delayed reaction to one or several protein substances. We have found this most frequently when animal serums were employed, though Cooke and Vander Veer [9] have noted the same thing with pollen extracts and Baker [10] with food proteins in children. It is thus highly probable that in a very large group of people, one might discover individuals representing all degrees of hypersensitiveness or intensity of idiosyncrasy. In the upper portions of the scale are the exquisitely hypersensitive persons who, for instance, may have hay-fever from the pollen of ragweed even though they remain in the heart of the city, or those who may suffer from violent gastro-intestinal disturbances and urticaria after eating a spoonful of ice cream to which egg white has been added; next lower in the scale would come the patients who develop symptoms only after close contact with the protein; still lower, are the patients such as some having urticaria, who develop symptoms only after receiving large or perhaps repeated doses of the protein to which they are hypersensitive; and finally come those individuals who possess a latent hypersensitiveness, as indicated by the skin reaction, but who under ordinary circumstances present no symptoms of the diseases under discussion.

One factor that is of much practical importance and that enhances the difficulty of making an accurate diagnosis in many instances is the multiplicity of reactions that may be obtained. These multiple reactions have been noted by all who have worked on this subject, and they occur with considerable frequency. They were observed by Cooke in 42.3 per cent. of his hay-fever patients, and in 70 per cent. of the patients that Dr. Mackenzie and I have studied. Walker and Rackemann [11] call particular attention to this point. In spite of these multiple sensitizations, it can frequently be demonstrated that only one of the substances to which the patient reacts is important in producing the symptoms of his disease. For instance, in cases of typical ragweed hay-fever the patient may react not only to extracts of ragweed pollen but also to several of the pollens of the other compositae, even though they never have hay-fever at the time of their flowering (Goodale [12]). The same thing is true of the asthmatics, and reference has already been made to the boy who had egg asthma and yet gave intense skin reactions to the serums of many animals. Indeed, some patients give reactions to such a variety of sub-

8. Schloss, O. M.: Allergy in Infants and Children, Am. J. Dis. Child. **19**: 433 (June) 1920.
9. Cooke, R. A., and Vander Veer, A., Jr.: J. Immunol. **1**: 201 (June) 1916.
10. Baker, H. M.: Incidence of Protein Sensitization in the Normal Child, Am. J. Dis. Child. **19**: 114 (Feb.) 1920.
11. Rackemann, F. M.: Boston M. & S. J. **182**: 295 (March 18) 1920.
12. Goodale, J. L.: Boston M. & S. J. **171**: 695, 1914; **175**: 181 (Aug. 10) 1916.

stances that it is almost impossible to determine which, if any, have an important bearing on the condition.

These multiple reactions, however, do not seem to represent a group sensitization, for in many instances they are apparently highly specific. Thus, reactions may be obtained, as has been shown by Walker,[13] to extracts of horsehair, or even to the individual proteins of horsehair, but not to horse serum; to the protein of the beef muscle, but not to beef serum, as we have found; to lactalbumin, but not to casein. That skin reactions may be obtained with chemically pure proteins has been repeatedly shown, and it would be of great interest to determine whether the interanaphylactic reactions found by Wells and Osborne[14] for proteins, from different sources, such as the chemically pure gliadin from wheat and hordein from barley, obtained for these hypersensitive individuals. According to the recent work of Dale and Dakin,[15] the specificity of the anaphylactic reaction, as determined for the proteins of the eggs of ducks and hens, depends on the chemical pattern, so to speak, of the protein molecule, and it would undoubtedly be important to know whether the same held true for the skin reactions.

NONPROTEIN SUBSTANCES

So far we have discussed only the idiosyncrasies toward substances that are formed largely of proteins, and are thus theoretically antigenic. But the problem is complicated by the fact that substances other than proteins may cause at times practically all the symptoms and skin reactions that have been described. Idiosyncrasies characterized by all forms of skin eruptions, by gastro-intestinal disturbances, acute collapse, and violent asthmatic dyspnea have been observed to such metals as mercury and arsenic, to the halogens, such as the iodids, the alkaloids, such as quinin, and to the benzene derivatives, such as salicylic acid and acetylsalicylic acid. As in the cases of protein hypersensitiveness, the idiosyncrasy may show itself the first time the patient takes the drug, or it may appear later during treatment. Immediate skin reactions exactly like those obtained with the proteins may be produced by these chemicals. Occasionally, however, the delayed form of reaction is encountered.

Two striking examples of this delayed form of reaction in cases of acquired arsenic iodiosyncrasy were studied by Drs. Stuart and Maynard [16] in my clinic the last year. Both patients, suffering from cerebrospinal syphilis, had been treated by repeated injections of arsphenamin, and both developed during treatment an extensive dermatitis exfoliativa. After their recovery from the dermatitis, it was found that the skin of these patients was exquisitely sensitive to injections of the minutest quantities of arsphenamin and neo-arsphenamin, so that 0.02 c.c. of dilutions of 1:125,000 of the drug would produce an elevated and itching swelling that reached several centimeters in diameter and persisted for several days. Arsenic in other forms, such as cacodylate, as well as various control substances, gave no such reaction. No similar reaction could be obtained in normal individuals, in untreated syphilitics, or in syphilitics who were receiving arsphenamin but who had not shown untoward symptoms.

13. Walker, I. C.: J. M. Res. **35**:497, 509, (Jan.) 1917.
14. Wells and Osborne: J. Infect. Dis. **12**: 341, 1913.
15. Dale and Dakin: Biochem. J. **12**: 248, 1919.
16. Stuart, H. C., and Maynard, E. P., Jr.: Hypersensitiveness to Arsphenamin Following Exfoliative Dermatitis, Arch. Int. Med. **26**: 511 (Nov.) 1920.

The experiments of Friedberger and Ito,[17] of Swift [18] and of Obermeyer and Pick [19] have shown that guinea-pigs may be sensitized actively against a combination of their own serum, and such drugs as the iodids and arsphenamin; and it may be that a similar explanation will hold for the drug idiosyncrasies in man, and thus place them in the same category as the cases of pollen or food hypersensitiveness.

OTHER FACTORS

There are still other factors, however, that must be considered and that distinguish the individuals who are naturally hypersenstive from the sensitized animal, or even from the normal individual who has received horse serum.

In the first place, the condition of hypersensitiveness is seen in its most extreme form in the naturally hypersensitive, such as asthmatics and hay-fever patients. Subcutaneous injections of such minute quantities as 0.1 c.c. of a 1:10,000 dilution of extracts of pollens and animal hairs may produce definite or even alarming symptoms in persons who are sensitive to these substances, while cutaneous reactions may be obtained with even smaller amounts.

Secondly, the familial occurrence of this hypersensitiveness is a feature of extraordinary interest. It has been recognized for many years that both hay-fever and asthma may occur in families, and now a close analysis of long series of cases, such as those published by Cooke and Vander Veer, and by Atkinson [20] and Rackemann, show that from 48 to 58 per cent. of their patients give a family history of some form of idiosyncrasy. In our own cases, the family history was positive in 31 per cent. Perhaps the most striking example is that described by Laroche, Richet and St. Girons,[21] in which idiosyncrasy to eggs ran in the male line through four generations.

These observations suggest very strongly that true inheritance plays an important part in the origin of the idiosyncrasies; and, indeed, Cooke and Vander Veer have calculated that the tendency toward hay-fever descends from generation to generation, according to the mendelian law. Should this prove true on further study of the other forms of idiosyncrasy, and should this tendency be an inherited characteristic, it would separate this group of patients definitely from the animal rendered anaphylactic experimentally; for, in the latter instance, though specific sensitiveness may be transferred to the offspring, it descends only from the mother, and is not a true inheritance but merely a passive transfer.

And, thirdly, one may point out another difference which may be quantitative rather than qualitative, and which consists in the rarity with which antibodies to the specific protein are found in the serum of hypersensitive individuals, as compared with the ease with which they are demonstrated in the sensitized guinea-pig or rabbit or in the human being that has been injected with foreign serum (Schloss,[22] Walker,[23] Clowes [24] and Bruck [25]). Indeed, it is quite noteworthy

17. Friedberger and Ito: Ztschr. f. Immunitätsforsch. **12**: 241, 1912.
18. Swift, H. F.: Anaphylaxis to Salvarsan, J. A. M. A. **59**: 1236 (Oct. 9) 1912.
19. Obermeyer and Pick: Wien. klin. Wchnschr., 1906, p. 327.
20. Atkinson, J.: Genetics **5**: 363, 1920.
21. Laroche, Richet and St. Girons: Gaz. d'hôp. **85**: 1969, 1912.
22. Schloss, O. M.: A Case of Allergy to Common Foods, Am. J. Dis. Child. **21**: 342 (June) 1912.
23. Walker, I. C.: J. M. Res. **36**: 243 (May) 1917.
24. Clowes: Proc. Soc. Exper. Biol. & Med., 1910, p. 69.
25. Bruck: Arch. f. Dermat. **96**: 241, 1909.

that Cooke, Floyd and Coca [26] were unable to sensitize guinea-pigs actively to extracts of ragweed pollen, though more recently Miss Parker,[27] working in Dr. Zinsser's laboratory, has been able to accomplish this. These factors are such that, without further study and experiment, one is not justified in assuming that the state of hypersensitiveness occurring, certainly at times, spontaneously both in children and in adults, is the same as anaphylaxis produced experimentally in animals, nor can one conclude that intoxication is dependent on the same mechanism in both cases, even though the symptoms produced may be analogous.

VARIATIONS IN OCCURRENCE AND TIME

Idiosyncrasy or spontaneous hypersitiveness to horse serum seems to occur more frequently and is certainly recorded more often in human beings than in such animals as the rabbit and guinea-pig, in which it is practically unknown. On the other hand, artificial sensitization by means of injections of horse serum can be attained with much greater regularity and to a much higher degree in guinea-pigs and rabbits than in man. Indeed, if one studies a series of patients who, for therapeutic purposes, have received subcutaneous or intravenous injections of horse serum, considerable variations are to be found in the occurrence and time of onset of serum disease, in the appearance of skin hypersensitiveness following the serum disease, and in the susceptibility of these individuals to subsequent injections of horse serum. Even when large doses of horse serum are given intravenously, only about 90 per cent. of the patients develop serum sickness, though all may eventually develop later some degree of hypersensitiveness of the skin.

We have been much interested in these variations and have now studied a number of patients who have received horse serum intravenously, to determine, if possible, why such variations occur. By following the fate of the horse serum in the body of these patients, as well as the formation of antibodies to horse serum, it has, I think, been possible to throw some light on this important question.

According to our present conceptions, horse serum itself is not toxic for the normal human being, and becomes so only when the cells of the body produce antibodies which unite with the horse serum to form substances injurious to the tissue cells.

Though there has been much discussion as to whether the formation of this toxic substance takes place in the circulation or in the tissue cells, it seems clear now, from the experiments of Schultz [28] and of Dale [29] and of Laidlaw [30] and of Weil,[31] that the intracellular formation of toxins is by far the most important factor in the production of the symptoms characterizing anaphylactic shock. If, therefore, after the injection of horse serum, the formation of antibodies were in any way inhibited, one might expect that the symptoms characteristic of serum disease might be lacking. It is known that, by the method of specific precipitation, a reaction for horse serum may be obtained in the blood, both of animals and of man, for many days following the injection; and, since reactions for horse serum cannot be obtained in the urine during this period, it is improbable that horse serum is excreted as such by the kidneys. It has been shown, too, especially through the work of Weil and of Bayne-Jones,[32] that antigen and precipitin may be present at the same time in the circulation without uniting.

By means of specific precipitin reactions, therefore, Dr. Mackenzie and I have attempted to find out how long horse serum may remain in the circulation, whether or not the duration of its stay is connected with precipitin formation, and what factors determine its disappearance. Preliminary observations in the rabbit demonstrated that when 5 c.c. of horse serum per kilogram of body weight was injected in a single dose intravenously, the horse serum disappeared quite regularly in from one to three weeks. Preceding the disappearance of horse serum, precipitins were formed in considerable concentration.

The conditions in a group of human beings who had received from 34 to 630 c.c. of therapeutic horse serum intraspinally or intravenously proved to be quite variable and of much interest.

CASE GROUPS

These patients could be divided quite sharply into three groups: (1) those who developed typical serum disease following the injection of horse serum (eleven cases); (2) those who showed no sign of serum disease at all, or who showed only the most trifling symptoms (four cases), and (3) those who developed mild and short attacks of serum disease (four cases).

In the first group, comprising eleven cases, the curve for the disappearance of horse serum and the formation of precipitins was similar to that in the rabbit. In these patients the precipitins appeared toward the end of the serum disease, and the horse serum disappeared from the circulation shortly thereafter. It seems probable, therefore, that in patients who have typical serum disease the horse serum unites with the tissue cells to form antibodies, and a reaction which causes the symptoms of serum sickness takes place within the cell. During this period, there is an excessive formation of antibody, which finally appears in great concentration in the circulation, and in the process the horse serum is, so to speak, used up and disappears.

In the second group of cases that did not develop serum disease, the fate of the horse serum was entirely different. In these patients there was practically no formation of antibodies, and the horse serum persisted in almost even concentration in the circulation, sometimes for months. In this group of patients, reactions for horse serum were present for from forty-nine to sixty-seven days and, in most instances, the patients were lost sight of before negative reactions could be obtained.

Besides the two sharply defined groups, there was a third comprising four patients in which serum disease occurred, though it was mild. Precipitins were formed, though in slight concentrations, and the reactions for horse serum persisted over a considerable period of time. The reactions of the patient toward the introduction of horse serum in this group partook of a character that was intermediate between the characteristic reactions observed in the first and the second groups.

26. Cooke, Floyd and Coca: J. Immunol. **2**: 217 (Feb.) 1917.
27. Parker, J. A.: Proc. Soc. Exp. Biol. & Med. **18**: 237, 1921.
28. Schultz, W. M.: J. Pharmacol. & Exper. Therap. **1**: 549, 1910; **3**: 299, 1912.
29. Dale, H. H.: J. Pharmacol. & Exper. Therap. **4**: 167, 1913; Proc. Roy. Soc. **91**: 126, 1920.
30. Laidlaw: J. Physiol. **44**: 318, 1910-1911.
31. Weil, R.: J. M. Res. **30**: 87, 299, 1914; J. Immunol. **1**: 47, 1916.
32. Bayne-Jones, S.: J. Exper. Med. **25**: 837 (June) 1917.

COMMENT

These observations suggest very strongly that the susceptibility of certain individuals to serum disease depends on the readiness with which the cells of the body unite with the circulating horse serum to form antibodies. Should this preliminary union be interfered with, the subsequent reaction is very slight, and if the union of the circulating horse serum and the cells of the body is by any means completely prevented, there will be no formation of antibodies. The reaction which manifests itself as serum disease will be absent, while the horse serum will continue to circulate as an innocuous substance until it is gradually destroyed by some other means.

It is impossible to say at present whether this protection against the foreign protein is due to some quality of the serum which stands as a barrier, so to speak, between the cells of the body and the foreign protein, or whether the protective mechanism resides in the cell itself, which for some reason is impermeable to the horse serum. But, in view of these observations, it seems possible that sensitization of the human being might very well depend on two factors: first, the permeability of the tissue cell to the foreign protein and, second, the formation of antibodies within the cells.

The insusceptibility of the patients in Group 2 to serum disease is analogous in mechanism to the immunity which certain cold-blooded animals, such as green lizards and marsh turtles, possess toward tetanus toxin. This was described by Metchnikoff [33] many years ago. These animals, as well as the fowl, which is relatively immune toward tetanus toxin, show no antitoxin in their circulation. On the other hand, it was found that the tetanus toxin is not rapidly destroyed in the cold-blooded animals, but can be demonstrated in the circulation for weeks or even months, where it persists as an innocuous substance.

Not only are these observations of interest in offering an explanation for the difference in susceptibility of individuals toward serum disease, but they may have some bearing on the important problem of individual difference in susceptibility to infection. Investigators in the field of natural immunity have been occupied chiefly in studying different degrees or forms of susceptibility characterizing races or species. It is clear, however, that within any given species there are wide variations in susceptibility to infection, for which at present there is no adequate explanation.

POSSIBLE ORIGIN OF HYPERSENSITIVENESS

The reactions which take place in man during serum disease, and the subsequent hypersensitiveness to the foreign serum, simulate the experimental conditions in animals much more closely than do the other forms of hypersensitiveness, such as occur in hay-fever and asthma: but the experiments decribed make one ask whether in the latter group the trouble does not lie in some fundamental defect in the cell or in the fluids of the body rather than in a type of artificial sensitization such as is produced experimentally in the guinea-pig. Schloss and Worthen [34] and Bonar and Grulee,[35] have shown that infants suffering from gastro-intestinal disorders may absorb egg albumin from the gastro-intestinal tract, when it may be demonstrated as such in the blood serum and be excreted through the kidneys, and it would be important to know whether these children, in whom the factors would be ideal for the production of hypersensitiveness, later become sensitive to egg white. Undoubtedly, minute quantities of native foreign protein enter our bodies from time to time without obviously sensitizing us, and it is necessary to discover some other factor besides the simple introduction into the body of foreign native protein that will determine the origin of this hypersensitiveness in man or that will explain the occurrence of idiosyncrasies in families or in the new-born child.

That many of the characteristics of the symptoms and reactions that occur in the hypersensitive patient may be produced in normal individuals by chemical substances is well known. Eppinger and Guttman [36] have shown that histamin, and Sollmann and Pilcher [37] that other amins, when applied to the skin will cause an urticarial wheal, while Sieburg [38] has observed generalized urticaria after injections of histamin subcutaneously. Though the reactions caused by these substances may have the same relative significance to the question of specific hypersensitiveness in man as have the symptoms caused in animals by various forms of split proteins, or to "anaphylatoxins" produced from blood serum by various methods to anaphylaxis, still the possibility of such forms of protein intoxication must be considered in clinical medicine. I shall not here attempt to discuss this difficult phase of the subject in detail, but I should like to point out one feature of these intoxications that has been of particular interest to us.

Some time ago, Dr. Rackemann and I [39] observed two cases of severe urticaria, in which, during the attacks, rather profound changes took place, both in the urea content of the blood and in the functional activities of the kidneys:

A man, aged 45, who was subject to attacks of severe urticaria, preceded by itching and swelling of the tongue and lips, and who was sensitive to beef and sheep proteins, showed in one such attack a temporary rise in blood urea to 98 mg. per hundred cubic centimeters, and in another a rise from 13.3 to 40 mg., together with a diminished salt and water excretion.

A woman, aged 58, was admitted to the Presbyterian Hospital with a diagnosis of uremia. There was a history of recent diarrhea, headaches and great prostration. The blood urea on admission was 300 mg. per hundred cubic centimeters. The phenolsulphonephthalein output was 38 per cent. There were very small quantities of urine, which showed much albumin and many casts, and a marked suppression of chlorid excretion. The blood pressure, however, was only 130 systolic, and 60 diastolic. Eleven days after the onset of the disease, she developed a profuse, generalized urticaria, which persisted for six days. Following the illness, the blood urea fell rapidly to 20 mg., the phenolsulphonephthalein rose to normal, and there was diuresis with excessive excretion of chlorids in the urine.

One actual case of chronic nephritis has been observed, during the course of which an attack of urticaria and erythema was accompanied by an alarming but temporary rise in blood urea, with suppression of chlorid and water excretion. The condition in

33. Metchnikoff: Immunity in Infectious Diseases, Cambridge, 1905.
34. Schloss, O. M., and Thacher, W. W.: The Permeability of the Gastro-Enteric Tract of Infants to Undigested Protein, Am. J. Dis. Child. 11: 342 (May) 1916.
35. Bonar, B. E., and Grulee, C. G.: Precipitins to Egg White in the Urine of New-Born Infants, Am. J. Dis. Child. 22: 89 (Jan.) 1921.
36. Eppinger and Guttman: Ztschr. f. klin. Med. 78: 399, 1913.
37. Sollmann and Pilcher: J. Pharmacol. & Exper. Therap. 9: 309 (March), 391 (April) 1917.
38. Sieburg, E.: Deutsch. med. Wchnschr. 40: 2038, 1914.
39. Rackemann and Longcope: J. Urol. 1: 351 (Aug.) 1917.

these patients simulates closely many of the characteristic features of the experimental intestinal obstruction, ascribed to proteose intoxication, so carefully studied by Whipple and his associates;[40] for one finds not only an increase in the nonprotein nitrogen content of the blood, but a temporary depression of the renal functions as well. Indeed, quite recently in four cases of intestinal obstruction in man, Dr. Louria [41] has been able to confirm not only the findings of Tileston and Comfort,[42] who reported a high nonprotein blood nitrogen content in three cases of intestinal obstruction, but the experiments and observations of Whipple, Cooke, Rodenbough and McQuarries.[43]

In the first patient, a woman, aged 32 paralytic ileus followed an operation on the gallbladder. During the period in which she was suffering from symptoms of intestinal obstruction, the blood urea, April 3, was 294 mg. per hundred cubic centimeters; two day later it was 264 mg. per hundred cubic centimeters, and after relief of the ileus, April 8, it was 101 mg. per hundred cubic centimeters. April 6, a generalized erythema and urticaria appeared, which persisted for two days.

In the other three cases, the blood urea varied from 109 to 294 mg. per hundred cubic centimeters during the period of obstruction. Three patients died, and at necropsy, made by Dr. Meleney, the kidneys were found to be normal, both grossly and microscopically.

In this group of cases, it seems highly probable, from all the evidence that can be collected, that proteoses or the toxic amins, such as histamin, may be absorbed from the intestine and cause disturbances not only of nitrogenous catabolism, but also, temporarily, of renal functions, but without anatomic lesions in the kidneys that can be demonstrated by our present methods.

To explain satisfactorily the clinical manifestations of the idiosyncrasies and allied disturbances, one must, therefore, consider two factors: first, the possibility of a specific hypersensitiveness toward some protein or indeed chemical substance; and, secondly, the possibility of a direct intoxication by some poisonous derivative of the protein molecule. How nearly related these are and what part the second plays in causing symptoms in the hypersensitive individual, it is impossible to state at the present time.

CONCLUSION

A certain proportion of individuals possess a peculiar idiosyncrasy to some substance or substances that usually are proteins, or that contain proteins, but that may be of nonprotein nature. Contact with these substances under certain conditions may cause hay-fever, asthma, gastro-intestinal disturbances, eczema, urticaria, or other cutaneous manifestations. As a rule, the symptoms of these diseases appear early in life and may be observed the first time the patient comes in contact with the substance to which he is hypersensitive. There is undoubtedly a definite tendency toward the inheritance, not of a specific hypersensitiveness, but of a quality of tissue that allows of the development of idiosyncrasies; and this may be dependent on a condition of the body fluids or of the cells which permits of a ready union of foreign protein with them. The peculiarity of the patients is that the skin reacts by the formation of an urticarial wheal to the application of the substance or substances to which they are hypersensitive. Though these reactions are highly specific, they may be multiple and produced by a large variety of proteins.

Normal individuals who have had subcutaneous or intravenous injections of horse serum show a measurable difference in their susceptibility to serum disease. This does not depend on the amount of serum, but on the condition of the tissue cells and fluids of the body which, in the susceptible individual, allows of the rapid union of the foreign serum with the cells of the body. In the small percentage of insusceptibles, the condition of the cells and body fluids is such that the union is inhibited or takes place so slowly that serum disease does not occur.

In contrast to these highly specific reactions are the disturbances, very similar in nature, that may be brought about in any normal person by the injection or absorption of some of the poisonous derivatives of the protein molecule, such as histamin.

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40. Whipple et al.: Jour. Exper. Med. **17**: 717, 1913; **19**: 166, 1914.
41. Louria, H. W.: Blood Urea Nitrogen in Acute Intestinal Obstruction, Arch. Int. Med. **27**: 620 (May) 1921.
42. Tileston, Wilder, and Comfort, C. W., Jr.: The Total Nonprotein Nitrogen and the Urea of the Blood in Health and in Disease, as Estimated by Folin's Methods, Arch. Int. Med. **14**: 620 (Nov.) 1914.
43. Whipple et al.: J. Exper. Med. **23**: 717 (June) 1916; **29**: 397 (April) 1919.

THE PIRQUET SYSTEM OF NUTRITION AND ITS APPLICABILITY TO AMERICAN CONDITIONS *

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Most of the criticisms in America of this system are leveled at the fact that the calory, which is well established in this country as the unit of feeding, is replaced by the "nem." It is unfortunate that the term "nem system" is used in describing it, as the "nem" is the least part of the philosophy. The term "Pirquet system" is a far better one, as it epitomizes all the essential facts—the nutritional estimations as well as the feeding methods. The system includes a host of details, singular in their simplicity, yet representing all the accepted principles of nutrition, based on strict mathematical formulas.

HISTORICAL

In order to keep the war spirit up to the highest point, the governments of the Central powers, Austria in particular, told their people that the conflict would end in their victory in a few months. This assurance brought a sense of false security to the people, so that conservation of food was little practiced during the first years of the war. As a result, there was widespread malnutrition, the most outstanding evidence of which was rickets. It was estimated that upward of 90 per cent. among the younger groups of children showed rachitic changes in some degree.

Pirquet and his staff, as well as other informed medical men, recognizing the true situation, voiced their convictions, but were little heeded amid the wild business of war. Pirquet, going quietly to work, developed a system, based on scientific principles, yet so simple that it could be applied to feeding on a large scale. The signing of the armistice, which brought Mr. Hoover, director general of relief of the Supreme Economic Council, to the assistance of the distressed population, was Pirquet's opportunity. The Austrian government

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named him commissioner general for Austria, and in May, 1919, because of the cooperation of the American Relief Administration, he was able to put his new system into effect. In Austria alone, a maximum of 300,000 children were fed daily, and nearly 1,500,000 children in central Europe ultimately received rations from this source. The governments of the various countries wherein feeding is carried on were anxious to cooperate. The Austrian government, for example, gives the commodities that the country is able to produce, such as flour and vegetables, and it also provides the machinery for the distribution. The American Relief Administration gives such food as the countries in question cannot produce and are too poor to buy (sugar, cocoa, milk, fats and the like). So it actually works out that about two thirds of the cost of feeding is defrayed by the recipient government, and one third by the American Relief Administration. Even so, the American Relief gets a great deal more than one third of the credit. The spontaneous outbursts of gratitude to America evinced by the Austrians, in particular, is the source of much comment by continental visitors.

A brief description of the machine in operation might not be amiss. The American food is landed at Hamburg, and shipped overland, duty free, to Vienna for the Austrian district. There it is stored in a central warehouse (a wing of the old imperial palace), and distributed on requisition to the district kitchens. These kitchens, often fitted up with old army supplies, cook food for a number of dining rooms in their respective districts. A charming part of the system is that there is no waste. Each dining room supervisor requisitions exactly the number of grams and "nem" prescribed in total for her children; it is delivered hot, about 11 a. m., and the feeding begins at 12.

The children file in, and each presents a card indicating the result of a previous physical examination and the number of "nem" prescribed for him. Serving ladles are standardized in size and so labeled that it becomes an easy matter to dispense any given number of "nem" of food. Each child brings his own container and spoon. This is required in order to prevent cross infection as well as to eliminate dishwashing. After his ration is given him, the child sits at a table and eats his meal. He may stay in the dining room as long as he desires, but he is not permitted to leave the room until his plate is emptied. This rule is insisted on and unless a child is obviously ill, he is compelled to eat his entire prescribed ration. This eliminates the appetite as the index of nutritional needs. It so works out that little trouble is experienced in this respect. The "psychology of the crowd," so dominant in youth, enters and solves the problem, much to the benefit of the child. At stated intervals the children are reexamined, and as soon as their nutritional index reaches a

TABLE 1.—PELIDISI CHART (FOR SCHOOLCHILDREN)

Sitting Height in Cm.	Percentage (Pelidisi)																					
	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108
55	10.0	10.4	10.7	11.1	11.5	11.9	12.3	12.7	13.1	13.6	14.0	14.4	14.9	15.4	15.8	16.4	16.9	17.4	17.9	18.4	19.0	19.6	20.1	20.7
56	10.6	10.9	11.4	11.7	12.2	12.6	13.0	13.4	13.9	14.3	14.8	15.3	15.7	16.2	16.8	17.3	17.9	18.4	18.9	19.5	20.1	20.6	21.2	21.8
57	11.1	11.5	11.9	12.4	12.8	13.2	13.7	14.2	13.6	15.1	15.6	16.1	16.6	17.1	17.7	18.2	18.8	19.4	20.0	20.6	21.2	21.8	22.4	23.0
58	11.7	12.1	12.6	13.0	13.5	13.9	14.4	14.9	15.4	15.9	16.4	16.9	17.5	18.0	18.6	19.2	19.8	20.4	21.0	21.6	22.3	22.9	23.6	24.2
59	12.4	12.8	13.2	13.7	14.2	14.7	15.2	15.7	16.2	16.7	17.3	17.8	18.4	19.0	19.6	20.2	20.9	21.5	22.2	22.8	23.5	24.1	24.8	25.6
60	13.0	13.4	13.9	14.4	14.9	15.4	15.9	16.5	17.0	17.6	18.2	18.8	19.3	20.0	20.6	21.2	22.0	22.6	23.2	24.0	24.6	25.4	26.1	26.8
61	13.7	14.1	14.6	15.2	15.7	16.2	16.8	17.3	17.9	18.5	19.1	19.7	20.3	21.0	21.7	22.4	23.1	23.7	24.4	25.2	25.9	26.6	27.4	28.2
62	14.3	14.8	15.4	15.9	16.5	17.1	17.6	18.2	18.8	19.4	20.0	20.7	21.4	22.1	22.8	23.4	24.2	24.9	25.7	26.4	27.2	28.0	28.8	29.6
63	15.0	15.6	16.1	16.7	17.3	17.9	18.5	19.1	19.7	20.4	21.0	21.7	22.4	23.2	23.8	24.6	25.4	26.2	27.0	27.8	28.6	29.4	30.2	31.1
64	15.8	16.3	16.9	17.5	18.1	18.8	19.4	20.0	20.7	21.4	22.1	22.8	23.5	24.3	25.0	25.8	26.6	27.4	28.2	29.0	29.8	30.6	31.5	32.4
65	16.5	17.1	17.7	18.3	19.0	19.7	20.3	21.0	21.7	22.4	23.1	23.9	24.6	25.5	26.2	27.0	27.9	28.8	29.6	30.5	31.4	32.2	33.2	34.2
66	17.3	17.9	18.5	19.2	19.9	20.6	21.2	21.9	22.7	23.4	24.2	25.0	25.7	26.6	27.4	28.2	29.2	30.0	31.0	31.9	32.8	33.8	34.8	35.8
67	18.7	18.7	19.4	20.1	20.8	21.5	22.2	23.0	23.7	24.5	25.3	26.1	26.9	27.8	28.6	29.5	30.6	31.4	32.4	33.4	34.3	35.4	36.3	37.4
68	18.9	19.6	20.3	21.0	21.7	22.5	23.2	24.0	24.8	25.6	26.4	27.3	28.2	29.1	30.0	30.9	32.0	32.9	33.8	34.9	35.9	36.9	38.0	39.1
69	19.8	20.5	21.2	22.0	22.7	23.5	24.2	25.0	25.9	26.7	27.6	28.5	29.7	30.4	31.3	32.3	33.4	34.4	35.4	36.4	37.5	38.6	39.7	40.9
70	20.6	21.4	22.1	22.9	23.7	24.5	25.3	26.2	27.0	27.9	28.8	29.8	30.7	31.6	32.7	33.8	34.8	35.8	37.0	38.1	39.1	40.3	41.5	42.6
71	21.5	22.3	23.1	23.9	24.7	25.6	26.4	27.3	28.2	29.1	30.1	31.3	32.1	33.1	34.1	35.2	36.4	37.4	38.6	39.7	40.9	42.0	43.2	44.5
72	22.4	23.2	24.1	25.0	25.8	26.6	27.6	28.5	29.4	30.4	31.4	32.4	33.5	34.5	35.6	36.7	38.0	39.0	40.2	41.5	42.6	43.9	45.1	46.8
73	23.4	24.3	25.1	26.0	26.9	27.8	28.8	29.8	30.7	31.7	32.8	33.8	34.9	36.0	37.0	38.2	39.5	40.7	42.0	43.2	44.5	45.7	47.1	48.4
74	24.4	25.3	26.2	27.1	28.0	29.0	30.0	31.0	32.0	33.0	34.1	35.2	36.3	37.4	38.6	39.8	41.1	42.4	43.7	45.0	46.4	47.6	49.0	50.4
75	25.4	26.3	27.2	28.2	29.2	30.2	31.2	32.3	33.3	34.3	35.5	36.6	37.8	39.0	40.1	41.4	42.8	44.1	45.4	46.9	48.3	49.5	50.9	52.5
76	26.4	27.4	28.4	29.4	30.3	31.3	32.7	33.5	34.6	35.7	36.9	38.2	39.3	40.5	41.7	43.1	44.5	45.9	47.3	48.7	50.3	51.5	53.0	54.7
77	27.5	28.4	29.5	30.6	31.6	32.6	33.8	34.8	36.0	37.2	38.4	39.6	40.9	42.7	43.5	44.8	46.4	47.7	49.2	50.7	52.3	53.6	55.2	56.8
78	28.6	29.6	30.7	31.8	32.8	33.9	35.0	36.2	37.4	38.6	40.0	41.1	42.5	43.9	45.2	46.6	48.2	49.6	51.0	52.6	54.3	55.7	57.3	58.9
79	29.7	30.8	31.8	33.0	34.0	35.2	36.4	37.7	38.8	40.1	41.5	42.8	44.1	45.5	46.9	48.4	50.0	51.5	53.1	54.7	56.5	58.0	59.6	61.3
80	30.8	31.9	33.1	34.2	35.4	36.6	37.9	39.0	40.4	41.7	43.0	44.5	45.9	47.3	48.7	50.2	52.0	53.6	55.1	56.9	58.6	60.1	61.8	63.7
81	32.0	33.2	34.3	35.5	36.7	38.0	39.3	40.5	41.9	43.3	44.7	46.1	47.6	49.1	50.6	52.1	54.0	55.5	57.3	59.0	60.8	62.5	64.3	66.0
82	33.2	34.4	35.6	36.8	38.1	39.4	40.8	42.0	43.5	45.0	46.4	47.9	49.9	51.0	52.5	54.1	56.0	57.6	59.5	61.3	63.0	67.9	66.7	68.5
83	34.4	35.7	36.9	38.2	39.6	40.8	42.3	43.7	45.1	46.6	48.0	49.6	51.2	52.9	54.5	56.1	58.1	59.7	61.7	63.5	65.3	67.2	69.1	71.0
84	35.7	37.0	38.2	39.6	41.0	42.3	43.8	45.3	46.8	48.3	49.9	51.5	53.0	54.8	56.5	58.2	60.2	62.0	64.0	65.8	67.7	69.7	71.6	73.6
85	37.0	38.2	39.6	41.0	42.4	43.9	45.4	46.9	48.5	50.0	51.6	53.4	55.0	56.8	58.5	60.4	62.4	64.3	66.3	68.2	70.0	72.1	74.2	76.3
86	38.3	39.6	41.0	42.5	44.0	45.5	47.0	48.7	50.2	51.9	53.7	55.4	57.1	58.9	60.7	62.6	64.6	66.5	68.5	70.5	72.7	74.8	76.9	79.0
87	39.6	41.0	42.5	44.0	45.5	47.1	48.7	50.3	52.0	53.8	55.5	57.2	59.1	60.9	62.9	64.7	66.9	69.0	71.0	73.0	75.2	77.5	79.6	81.8
88	41.0	42.5	44.0	45.5	47.2	48.7	50.4	52.0	53.8	55.5	57.5	59.2	61.2	63.0	65.0	67.0	69.3	71.4	73.5	75.5	77.8	80.0	82.4	84.7
89	42.5	44.0	45.5	47.1	48.8	50.5	52.2	53.9	55.7	57.5	59.6	61.2	63.3	65.3	67.3	69.4	71.6	73.6	76.0	78.1	80.5	82.9	85.2	87.5
90	44.0	45.4	47.0	48.7	50.4	52.2	54.0	55.8	57.5	59.5	61.5	63.4	65.4	67.5	69.5	71.5	74.0	76.4	78.8	80.9	83.4	85.7	88.1	90.5

* Instructions for use: To determine the "pelidisi," locate in the left hand column the child's sitting height in centimeters. With a ruler follow the weights in kilograms to the right until the proper figure is reached. Trace upward in that column to the heavy figure at the top, which indicates the pelidisi.

desirable point (at present 94 per cent. "pelidisi"), the child is discharged from the class and a less fortunate individual substituted.

THE NUTRITIONAL INDEX—THE "PELIDISI"

Pirquet believes that the sitting height is a basis for the more accurate estimation of the nutritional state than is the standing height. It was demonstrated that the cube of the sitting height in centimeters is approximately ten times the weight in grams of the normal person. With this formula in mind, it becomes easy to compute the nutritional state in percentages, when the sitting height and the weight are known. The formula would read,

$$\frac{\text{10 times the weight}}{\text{Sitting height}^3} = 100 \text{ per cent.}$$

or

$$\frac{\text{10 times the weight}}{\text{Sitting height}} = 100 \text{ per cent.}$$

It is obvious from this formula that if the weight is lower, the percentage of nutrition (pelidisi) would be

lower; and if the sitting height were higher, the percentage of nutrition likewise would be lower. In order to make a convenient term to designate this percentage of nutrition, Pirquet coined the word "pelidisi" (*p*ondus, *d*ecies, *l*inear, *d*ivided by *s*itting height).

Given the sitting height and weight of a child, the physician, by simple mathematics or with a slide rule, can readily compute the pelidisi. Further to simplify matters, a table was devised (Table 1) wherewith a person with no medical training can easily determine the pelidisi of a child.

In actual practice, the pelidisi of a well-nourished, normal child is very close to 100 per cent. An obese child may go up to 110 per cent. Thin children run between 88 and 94 per cent. The thinnest we have observed in this country or in Austria was 85 per cent. Generally speaking, a child with a pelidisi between 95 and 100 per cent. may be said to be well nourished. An adult, however, with a pelidisi below 100 per cent. is undoubtedly undernourished. At 104 or 105 per cent., he is overfed and the intake should be reduced. In the American Relief Administration's feeding, the line is drawn at 94 per cent. If food were plentiful, Pirquet would probably insist that the limit be gradually raised to 98 or 100 per cent.

PHYSICAL EXAMINATION

In order to verify the accuracy of the pelidisi, Pirquet standardized the method of physical examination of the child. He classified the results of the examinations under four headings—*s*anguis (blood), *c*rassitudo (fat), *t*urgor and *m*uscularis. He chose the vowel a to indicate normality and e, i, o, u as symbols to designate the degree of deviation of these tissues above or below normal. In this way a new word was evolved, one that would represent the physical status of the child. Eventually "sacratama" came to mean the physical examination.

TABLE 2.—SACRATAMA

	Sanguis (blood)	Crassitudo (fat)	Turgor (water)	Muscularis (muscle)	
i	Si	cri	ti	mi	Greatly increased
e	Se	cre	te	me	Moderately increased
a	Sa	cra	ta	ma	Normal
o	So	cro	to	mo	Moderately decreased
u	Su	cru	tu	mu	Greatly decreased

Index 3-2-1-0.

Further to simplify the formula (it is sometimes difficult to remember without consulting the chart what "so-cre-to-ma, for example, means), an index was formulated: 3-2-1-0. To illustrate: If a child were slightly anemic and moderately thin, but of good turgor and muscle tone, his classification would be "so-cro-ta-ma." It is apparent that there are two points off normal, so a circle is thrown around the 2. If, on the other hand, he were particularly well muscled and he were classified "so-cro-ta-me," he would have two points below normal and one point above; the difference would be 1, and a circle would be thrown around this number.

It is a common observation that there is a direct relationship between the pelidisi and the sacratama. When the pelidisi is around 90 per cent., the sacratama is likely to be three points off normal; if the pelidisi is near 95 per cent., the sacratama will probably be one or two points off normal. A normal pelidisi almost invariably accompanies a normal sacratama.

Pirquet felt that the calory, which is a unit of measure best adapted to the requirements of the physicist and the engineer, does not meet the practical needs of the physician and dietitian. In place of the calory, Pirquet prefers a nutritional unit based on the food value of 1 c.c. of milk. This unit he calls a "nem" (*n*utrition-element-*m*ilk). The physician and dietitian have to deal with a populace to whom milk is familiar and who can readily visualize a unit of food measurement in terms of this common article of diet, while the calory suggests nothing concrete to one unaccustomed to thinking in terms of physics.

TABLE 3.—THE NEM VALUE OF FOODSTUFFS

	Nem in 1 Gm.	Protein, Dekanem in Hectonem
Meat:		
Tallow	12½	0
Lard	12½	0
Bacon	10	0.5
Fat mutton	5	2
Fat beef	4	3
Lean beef	2	6
Lean mutton	2½	4
Fresh fat fish (salmon)	2½	4
Fresh lean fish	1¼	8
Gelatin (jello)	Ignore food value	
Ham	5	8
Milk and Eggs:		
Condensed with sugar	5	1
"Evaporated milk"	2	2
Mother's milk	1	1
Cow's milk	1	2
Skimmed milk	0.5	4
Cream	2½	1
Whole egg	2½	3
Egg yolk	5	2
Heavy cheese	6	3
Dry cheese	4	5
Cream cheese	2½	6
White of egg	0.6	9
Fats:		
Butter	12	0
Oleomargarin	12	0
Suet	12	0
Salad oil	12½	0
Lard	12½	0
Cereals:		
Rice	5	1
Rice, cooked	1¼	0.3
Wheat flour (or other)	5	1
Crackers	5	1
Zwieback or toast	5	1
Barley, oats, wheat, corn	4½	1
Wheat bread	4	1
Vegetables:		
Dried vegetables	4	2
Potato	1¼	0.5
Green peas	1	2
Green beans	0.5	2
Carrots	0.5	1
Turnips	0.4	1
Cabbage	0.4	1
Cauliflower	0.4	2
Spinach	0.4	3
Tomatoes	0.25	2
Asparagus	0.25	2
Lettuce, cucumber	0.2	2
Sweets:		
Chocolate	6½	0
Cocoa	6	1
Sugar—a starch	6	0
Syrup	5	0
Honey	5	0
Jam	3½	0
Fruits:		
Grapes	1	0.5
Fresh fruit	0.6	0.5
Grape juice	1.5	0
Lemon juice	0.6	0
Other fruit juices	0.7	0
Dried	3.3	0.5
Nuts:		
Nuts	9	1
Sweet almonds	8	1

The fact that there are about 667 calories in 1,000 c.c. of milk further complicates the application of the caloric system. With Pirquet's method, 1,000 c.c. of milk = 1,000 nem. The nutritive value of any other food can be readily expressed in nem simply by comparing its food value with that of milk (Table 3). For example, gram for gram, the value of sugar is six times that of milk. It would take, therefore, approximately 17 gm. of sugar to equal 100 c.c. of milk, ($17 \times 6 = 102$); likewise, butter, having twelve times the value of milk, would require about 8 gm. to equal 100 c.c. of milk ($8 \times 12 = 96$). In this manner all

combinations of foods can be reduced to milk value or nem.

For the dietitian it is one advantage of this method that most food combinations can be made so that they are "equal strength" (that is, 100 gm. = 100 nem); "one and one-half strength" (100 gm. = 150 nem); or "double strength" (100 gm. = 200 nem). In Table 4 are given a few recipes with their nem values. Others can be readily formulated.

In making up these recipes, it is only necessary to determine the value of a given food relative to 1 c.c. of milk (1 nem). For example, in making the recipe for succotash, we find by referring to Table 3 that fresh lima beans and string beans are each but 0.5 the strength of milk; that corn is 0.4 of milk strength; and that bacon is 10 times as strong in nutritive value as milk. So in calculation, 100 gm. of lima beans, multiplied by 0.5 = 50 nem; likewise, 100 gm. of beans = 50 nem; 100 gm. of corn has but 40 nem (100 × 0.4 = 40); 86 gm. of bacon carries 860 nem (86 × 10 = 860); water should be added to facilitate cooking, and when the combination is finished, sufficient hot water should be added to bring it up to 500 gm. (There are 1,000 nem in the mixture and we desire double strength).

TABLE 4.—RECIPES WITH THEIR NEM VALUES

Single Strength

Cream Soup	Gm.		Nem
Skimmed milk	340	(340 × 0.5 = 170) =	170
Green vegetables	133	(133 × 0.4 = 53) =	53
Butter	20	(20 ×12 = 240) =	240
Flour	9	(9 × 5 = 45) =	45
Total	502		508

The food value of this combination in relation to milk would be 100 c.c. = 100 nem.

Note: To determine the relative value of these foods to milk, see Table 3.

One and One-Half Strength

Rice Custard	Gm. or C.c.		Nem
Milk	250	(250 × 1 = 250)	250
One egg	50	(50 × 2.5 = 125)	125
Sugar	10	(10 × 6 = 60)	60
Rice	18	(18 × 5 = 90)	90
Water	20	(20 × 0 = 00)	00
Total	348		525

Food value in relation to milk, 100 gm. = 150 nem.

Double Strength

Succotash	Gm. or C.c.		Nem
Fresh lima beans	100	(100 × 0.5 = 50) =	50
String beans	100	(100 × 0.5 = 50) =	50
Corn	100	(100 × 0.4 = 40) =	40
Bacon	86	(86 ×10 = 860) =	860
Water	114	(114 ×00 = 00) =	00
Total	500		1,000

Food value in relation to milk = 100 gm. = 200 nem.

Pirquet believes that there is a direct relationship between the food requirements of the individual and the "absorptive surface" of the alimentary canal. He demonstrated that the measure of this "absorptive surface" in square centimeters is equal to the figure arrived at by squaring his sitting height. Thus, a child with a sitting height of 50 cm. would have an absorptive surface of 2,500 square centimeters. It was further observed that, in twenty-four hours, this absorptive surface could not utilize more than 1 c.c. of milk or its equivalent in other food, for each square centimeter of its surface. Although the child in question could absorb a "maximum" quantity of 2,500 c.c. of milk, (2,500 nem) or its equivalent in other food, the constant take of so much would tend to overtax the digestive system; so that a lesser or "optimum" amount of food would be desirable.

Pirquet also estimated the needs of the individual for basal metabolism which is, of course, an irreducible "minimum," as three tenths of the "maximum." The author of the system insists that the growing individual needs one tenth of the calculated "maximum" for purposes of growth; that he must have another tenth for the maintenance of his reserves of body fat; that he requires still another tenth to meet the demand of moderate exercise and a further tenth if he is one whose activity is unusual. The sum of these fractions provides the physician with a basis for calculating the nutritive needs of the child and for writing his prescription. For example, the prescription would read, 0.5, 0.6, 0.7 or, unusual cases, 0.8. For these figures, Pirquet has given the name "decinemsiqua" (written DnSq). To further amplify: Consider the same child whose sitting height is 50 cm. As stated, the square of 50 cm. (2,500 square centimeters) gives a figure which is about the same as the number of square centimeters of the intestinal "absorptive surface." This figure also represents the "maximum" number of nem which can be utilized by this surface. The child needs, to meet the demands of its basal metabolism, three tenths of the "maximum," 2,500 nem, which is 750 nem; for its growth, one tenth of the "maximum," or 250 nem; for fat reserve, one tenth, or 250 nem; for moderate activity, one tenth, or 250 nem more should be added. It is apparent, therefore, that this child would require 1,500 nem, or six tenths of the "maximum." If this child should become very active, another one tenth could be added to bring his total daily intake up to seven tenths, or 1,750 nem.

The dispensing of this prescription becomes simplicity itself. The dietitian or nurse takes the sitting height of the child, squares it, and in this manner arrives at a figure that is identical with the number of square centimeters of "absorptive surface" of the individual's intestinal canal; it will be remembered that this figure also represents the maximum amount of food in nem, utilizable by the intestinal canal; and that to administer this "maximum" amount would derange the digestive system. She then notes by the prescription that the physician has prescribed but six tenths of the maximum (written 6 DnSq). So she multiplies the square of the sitting height by the fraction prescribed, and the result gives her the daily total of food requirements. For example, suppose again the sitting height to be 50 cm., 50 × 50 = 2,500. 2,500 × 0.6 = 1,500. This figure, then, represents the number of nem required daily for the child's nutritional needs. (It is commonly designated as 15 hectonem, or 15 Hn.) Suppose the physician had prescribed three meals a day, she would probably give 4 Hn for breakfast, 6 Hn for dinner and 5 Hn for supper; total, 15 Hn. This would represent his actual food requirements, and the ingestion of anything less would leave him underfed.

The Pirquet method in no way interferes with proper "balancing" of a ration between its fat, carbohydrate and protein elements. Quite the contrary, it simplifies the estimation. In Table 3, the nem value of foodstuffs, a figure may be noted under the protein column. This represents the approximate amount of protein in dekanem (10 nem) contained in each hectonem

(100 nem). For example, fresh ham carries 8 dekanem, or 80 nem, in each hectonem, of food value. So at the end of a daily menu, it becomes an easy matter to add up the dekanem of protein contained and to compare this with the total number of nem prescribed. Pirquet estimates that at least one tenth of the daily food ration should be protein in order that the "structural" element of the diet may be sufficient.

Outside the question of fat soluble vitamins and the palatability of the mixtures, the originator of the system concerns himself but little about the fats. He believes that the carbohydrates and fats are largely interchangeable as "combustibles," and that a high carbohydrate, low fat ration, provided the protein content is at least 10 per cent., and sufficient fat soluble A growth factor is present is not incompatible with health.

We believe that the Pirquet system is applicable to American conditions, especially those under which it may be desirable to feed children in considerable numbers. The method appeals to us for the following reasons:

It provides a simple, accurate and rapid method of estimating the nutritional status easily grasped by workers even without medical training, and it impresses them in a graphic way with the necessity of proper nutrition; it reduces the prescribing of the requisite food intake to a simple formula based on the sitting height as a constant; it makes it possible by the use of a single word to make a record of the child's nutritional state which may serve for comparison with the

TABLE 5.—CORRECTION FOR CLOTHING

	Girls 6 to 9 Years	Girls 9 to 12 Years	Boys 6 to 9 Years	Boys 9 to 15 Years
Subtract in pounds for weight of clothes	3 to 4	4 to 5	4 to 5	5 to 7

results of future examinations; it eliminates waste and at the same time it provides the child with an adequate amount of food to cover his needs and, by its very operation, it insures the actual ingestion of the food; it serves as a selective agent, at once segregating children into various groups—those with moderate need, those with urgent need and those without need of additional food.

In applying the method in the children's wards and in the outpatient department of the University of California Hospital, we have found it applicable, easy of accomplishment and extremely popular among all those who work with it.

APPLICABILITY OF THE SYSTEM TO CONDITIONS HERE

In order to determine the relative accuracy of the pelidisi and sacratama features of the system when applied to American conditions, we have examined through the courtesy of Dr. William C. Hassler, health commissioner of San Francisco, 1,282 well children of the San Francisco schools. We have used the same technic as that applied to the Austrian children, with the exception that we were not permitted to remove the clothing. To make correction, we stripped a group of children in our outpatient department and weighed the clothing. From these figures, we constructed Table 5. It is obvious that this chart cannot be used in every locality. The season and the weather must be taken into consideration and a chart formulated for each community. The schoolchildren of this series were weighed, and an appropriate figure from this chart was subtracted. We believe this gives a close approximation of the child's weight.

To compensate for the increased sitting height produced by the clothing, we were careful to take the figure in measurement just below the fraction, if there was one, and to make due allowance in the case of boys wearing corduroy or other heavy trousers.

To determine the relative nutritional status of children of the different social strata, we chose three schools situated in (1) the very poor district (the Italian quarter); (2) the industrial district, and (3) the wealthy residence district (see Table 6).

TABLE 6.—THE PELIDISI OF ONE THOUSAND TWO HUNDRED AND EIGHTY-TWO SCHOOLCHILDREN

School	Grades	Number	94 Pelidisi and Under		100 Pelidisi and Over	
			No.	%	No.	%
1. Michaelangelo	All	408	270	66	16	4
2. Mission Street	6-7-8	321	147	45	49	15
3. Madison	All	251	124	49	26	10
4. Open Air School M. A.	All	21	11	52	0	0
5. Marshall	Up to 6	281	157	56	14	5
Total		1,282	709	53	105	7

In analyzing the figures thus obtained, it becomes apparent that:

1. In School 1 (in the poor district), 66 per cent. of the children show pelidisis of 94 per cent. or under (this is the lower limit at which Pirquet regards a child as normal. The American Relief Administration gives a daily supplementary meal to each child whose pelidisi is 94 per cent. or below) and that in this district only 4 per cent. have a pelidisi of 100 per cent. or over.

2. In School 2 (in the industrial district), there are but 45 per cent. of the children with pelidisis under 94 per cent., and there are 15 per cent. with pelidisis 100 per cent. or above.

3. In school 3 (in the wealthy district), 49 per cent. of the children have pelidisis of 94 per cent. or below, and 10 per cent. are 100 per cent. or above.

4. In School 4 (an open air school for tuberculous children wherein a well balanced noonday meal is given) 52 per cent. of the pupils show pelidisis below 94 per cent., and none are 100 per cent. or above. (This is a small series, however).

TABLE 7.—EXAMINATION RECORD

Name	Sitting height.....cm.
Age	Weight.....kg.
Sex	Pelidisi.....per cent.
Grade	S--cr--t--m--
	Index: 3-2-1-0.

It is therefore apparent that the highest degree of malnutrition is in the school in the very poor quarter and the next highest is to be found in the wealthy district. The children showing the best nutritional status come from the industrial districts. It is also a significant feature that the tuberculous children of the open air school who receive a free, daily, supplemental meal, have a higher average than the children of the school (the Michaelangelo) to which the open air school is attached.

In examining these figures, it became apparent to us that while a high percentage of these children

would qualify for American Relief Administration feeding if they lived in central Europe, yet the extreme degree of malnutrition is not to be found here; that the greatest number of the children whose pelidisis were 94 and below are just under the upper limit fixed by the American Relief Administration, that is, in the 94, 93 and 92 columns. This corresponds rather closely to figures obtained by surveys of groups of schoolchildren conducted by the other organizations. Summarized, about half of the children of this series show a mild degree of malnutrition.

TECHNIC OF EXAMINATION

Blank sheets (Table 7), are distributed to the children, who fill in the name, age, sex and grade. The classes are then brought, one at a time, to the examining room. The child is first measured in centimeters [1] then weighed in kilograms, and these items are entered on the blank. If scales weighing in pounds and ounces are provided, the transposition to kilograms can be made readily by reference to Table 8.

TABLE 8.—CONVERSION OF POUNDS TO KILOGRAMS

Lb. = Kg.	Lb. = Kg.	Lb. = Kg.	Lb. = Kg.	Lb. = Kg.
20 9.1	52 24.1	86 39.1	119 54.0	150 68.1
21 9.5	54 24.5	87 39.5	120 54.5	151 68.6
22 10.0	55 25.0	88 40.0	121 54.9	152 69.1
23 10.4	56 25.5	89 40.4	122 55.3	153 69.6
24 10.9	57 25.9	90 40.8	123 55.8	154 70.0
25 11.4	58 26.3	91 41.3	124 56.3	155 70.5
26 11.8	59 26.8	92 41.7	125 56.7	156 70.9
27 12.3	60 27.3	93 42.2	126 57.2	157 71.4
28 12.7	61 27.9	94 42.7	127 57.6	158 71.8
29 13.1	62 28.2	95 43.2	128 58.1	159 72.3
30 13.6	63 28.6	96 43.6	129 58.5	160 72.7
31 14.2	64 29.1	97 44.0	130 59.0	161 73.2
32 14.5	65 29.5	98 44.5	131 59.5	162 73.6
33 15.0	66 30.0	99 44.9	132 59.9	163 74.1
34 15.4	67 30.4	100 45.4	133 60.3	164 74.6
35 15.9	68 30.9	101 45.8	134 60.8	165 75.0
36 16.4	69 31.3	102 46.3	135 61.3	166 75.5
37 16.8	70 31.8	103 46.7	136 61.7	167 75.9
38 17.3	71 32.2	104 47.2	137 62.2	168 76.3
39 17.7	72 32.7	105 47.6	138 62.7	169 76.8
40 18.2	73 33.1	106 48.1	139 63.1	170 77.3
41 18.6	74 33.6	107 48.6	140 63.6	171 77.7
42 19.1	75 34.1	108 49.0	141 64.0	172 78.1
43 19.5	76 34.5	109 49.5	142 64.4	173 78.6
44 20.0	77 35.0	110 50.0	143 64.9	174 79.1
45 20.4	78 35.4	111 50.4	144 65.3	175 79.6
46 21.0	79 35.9	112 50.8	145 65.8	176 80.0
47 21.3	80 36.3	113 51.3	146 66.3	177 80.5
48 21.8	81 36.8	114 51.8	147 66.7	178 80.9
49 22.2	82 37.2	115 52.2	148 67.2	179 81.4
50 22.7	83 37.7	116 52.7	149 67.6	180 81.8
51 23.2	84 38.1	117 53.1		
52 23.6	85 38.6	118 53.6		

The pupil then goes to the physician, who makes a notation of the sacratama simply by filling in the proper vowels (Table 2). The child then takes the form to a desk, where an assistant fills in the pelidisi by reference to Table 1, after which he is discharged. With three assistants (nurses or even teachers), the physician can readily determine and record the nutritional status of 100 children in an hour. If it is desired to make further examination and to record the findings, such information might well be added to the blank. These records are then filed for future reference.

It is our firm conviction that this system could be applied to the feeding of American schoolchildren, a surprising percentage of whom have been shown to be in need of supplemental feeding. After seeing the great machine function so smoothly and so efficiently in central Europe, we can see no reason why it should not work with equal facility in this country.

1. A small box, to the back of which is nailed a rigid board bearing centimeter rulings, is easily improvised, and it makes an admirable apparatus for measuring the sitting height.

A central kitchen or kitchens, cooking food in large quantities, could supply the schoolchild with a good, palatable meal at a minimum price. In Austria the cost is but 9 cents per meal. Assuming that we could duplicate that figure, at a minimum, the individual could be served a meal for 10 cents; the 1 cent profit could go to a fund for the gratuitous feeding of the children of the poor. This would eliminate the distressing feature now often prevalent in school feeding programs—the undernourished child who cannot afford to buy a noon meal.

This food could be delivered in double walled cans (similar to a vacuum bottle) to the various schools and there dispensed to the children according to their nutritional needs. This distribution might be carried on without cost, by volunteers provided by the parent-teacher organizations. The problems of dishwashing and of cross infection could be eliminated by having each child bring his own plate and spoon. The principals of the schools could insure the ingestion of the proper amount of food by not permitting the child to leave the dining hall, except for good reason, until his plate is emptied. At stated intervals, the children could be reexamined, and, if desired, those showing a satisfactory pelidisi could be excluded.

The midforenoon milk feedings, and the cafeteria system of noon feeding, while admirable in some respects, can be nothing more than makeshifts. They can never take the place of a palatable, inexpensive, well cooked and well balanced noon meal.

CONCLUSION

The experience of Mr. Hoover and Professor Pirquet in central Europe is ample evidence that the nutritional status of children fed by this method is markedly improved in a surprisingly short time. The sending of food for the relief of the children of central Europe was highly commendable; in fact, it was one of the most generous things that history records. Yet we should not overlook the fact that many of our own children, judged by the same standards employed by the American Relief Administration, are in need of supplemental food. Mr. Hoover and Dr. Pirquet have pointed the way. Shall we ignore it?

Resolutions of Calcutta Leprosy Conference, February, 1920.—Forty-six superintendents of Indian leper asylums adopted resolutions to the effect that leprosy is contagious, but slowly, with a long incubation period, through the escape of the bacillus in the nasal discharges of the majority of cases, which include many cases having no outwardly visible ulceration, and to a less extent from open sores; that the disease is not directly hereditary, children being free from actual infection at birth, but that they are specially susceptible to contagion from an early age, children as a class being more susceptible than adults. These facts necessitate the earliest possible separation of infants and children from infected leper parents; that segregation is the most effective measure for reducing the prevalence of leprosy; that steps be taken to provide facilities for the training of medical assistants in the diagnosis and in the treatment of leprosy to enable the best methods to be more generally used in asylums, and also in hospitals and dispensaries. In view of the considerable degree of fecundity of lepers, especially of females, and the excessive danger of contagion to the children of lepers, which play a great part in maintaining the prevalence of the disease, the separation of the sexes is desirable as far as possible. Whenever this is not found to be practicable, married lepers should only be allowed to live together on the express understanding that any children born to them shall be separated from their infected parents at the earliest possible age.—*Internat. J. Public Health* **1**:297, 1920.

V. 19

MULTIPLE MYELOMA

REPORT OF A CASE

SVERRE OFTEDAL, M.D.

FARGO, N. D.

Multiple myeloma must still be classed among the rare diseases. According to Wallgren,[1] there were, up to 1920, only 118 cases on record in which the diagnosis had been confirmed at necropsy. While the etiology is to a great extent obscure, some interesting evidences have been brought to light by observations on the reported cases. Harbitz,[2] with the possibility in mind of its being a systemic disease of infectious origin, injected a series of animals with tumor substance; with negative results in all cases. Bradshaw [3] reports a case in which the Bence-Jones protein was discovered in the urine more than a year before the appearance of any tumors. Based on this finding, he made a correct diagnosis of myeloma with its inevitable prognosis. This would seem to suggest an etiologic significance to the practically constant presence of the Bence-Jones protein in myeloma. Trauma has had an important rôle in the history of the reported cases, sometimes, indeed, being of such a trivial nature as scarcely to be noticed by the patient at the time of its occurrence; the site of such trauma, however, in many cases having been the starting point of a later tumor. The case here reported seems to be of interest not only from the standpoint of its rarity but also because of the definite history of trauma, and a period of more than one year during which there was constant irritation of the rib surfaces by a hard rubber drainage tube.

REPORT OF CASE

History.—A farmer, aged 41, married, gave an unimportant family history, except that the mother had died, at 60, of what might have been pulmonary tuberculosis. The patient had "shingles" of the right chest wall in 1900; was operated on for hemorrhoids in 1913, and had an attack of influenza in 1918, from which he made an uneventful recovery.

The present trouble dates back to the early part of September, 1919, when he was accidently struck over the right chest wall with a fence rail. A physician was called, who found no ribs broken nor any other injury of a serious nature. The patient was suffering a good deal of pain, and the physician strapped the chest wall with adhesive. This, however, did not entirely relieve the pain, which continued until the latter part of the month, when he says he contracted a "cold," associated with pain in the right shoulder radiating into the right side of the chest. This pain grew worse, and October 6 he was obliged to go to bed on account of pain, severe chills and high fever. After remaining in bed several weeks, the right pleural cavity was aspirated and about a pint of thick pus withdrawn. In the early part of November, he was taken to the hospital for a rib resection. He remained in the hospital until March, 1920. During this period, there was considerable drainage, an occasional rise in temperature and cough, with puslike expectoration. The shoulder and chest pains were continually present, and at times, he complained of rather indefinite pains in various parts of the upper portion of the body.

Some time during the summer of 1920, he entered St. Luke's Hospital and was in the charge of an osteopath, until October 9, when he came under my care.

Examination.—The patient was markedly pale and emaciated. The superficial bone surfaces were very prominent; but there was no sign of tumor formation at this time. In the right midaxillary space was a thoracotomy wound from which a hard rubber tube the size of a pencil protruded. The patient explained that this tube had been in place for many months, being removed occasionally for cleansing. There was a small amount of thick, greenish pus on the dressing. There was distinct tenderness on pressure over the distal portions of both clavicles, also of the lower portion of the left humerus. Percussion revealed a palm sized area of dulness over the lower chest posteriorly. Over this area there was distinct tubular breathing, but no râles. Beyond this, the physical examination revealed nothing of importance. The urine showed a specific gravity of 1.015, a trace of albumin and a few hyaline and granular casts. The hemoglobin was 70 per cent., leukocytes 6,800; red cells, 3,166,000. Differential count was: polymorphonuclear neutrophils, 69 per cent.; small lymphocytes, 20 per cent.; large lymphocytes, 8 per cent.; eosinophils, 2 per cent.; basophils, 1 per cent. The sputum was examined repeatedly for tubercle bacilli during his stay in the hospital, always with negative results. The Wassermann reaction was negative; the temperature at this time was 100.2 F., pulse, 82; respiration, 22; blood pressure, 128 systolic and 96 diastolic.

Clinical Course.—After two days of observation, the chest sinus was injected with bismuth and a roentgenogram taken. This showed a pencil-sized sinus, about 6 inches long running inward, downward and posteriorly. At the termination of the sinus was a small, well defined abscess cavity, the entire tract suggesting the appearance of a rose with a long stem.

Following the bismuth injection, there was considerable improvement in the general condition of the patient. The temperature, two days later, was normal and remained so for several weeks. The discharge ceased entirely until a few weeks before death; the appetite was good and the general disposition of the patient changed from deep depression to optimism. He still continued, however, to have the bone pains. And about two weeks after the bismuth injection, a small firm tumor was first noticed at the distal extremity of the right clavicle.

October 26, while being assisted to his bed by the nurses, he sustained a fracture of the lower third of the left humerus. A roentgenogram was taken, which showed the fracture at the site of a markedly rarefied area of the bone. This led to a general roentgen-ray examination of the body, which disclosed these rarefied areas in several of the bones of the upper part of the body, particularly the clavicles, sternum, ribs, left humerus and skull. The roentgenologist, Dr. Rothnem, made a diagnosis of multiple myeloma.

The fracture was splinted and healed after a few weeks, only to recur at the same point later, after he had left the hospital (January, 1921).

The occurrence of the fracture seemed to bring back the condition of depression. The arm was very painful in spite of immobilization, and there was now a marked aggravation of the pains in other parts of the body, notably in the head, which was so painful that special support had to be provided partially to alleviate the suffering.

Being discouraged with the progress of his treatment, he decided to leave the hospital and to try Christian science "healing." He was not seen again until January of this year. The chief complaint then was vomiting, associated with tympanites and constipation. These symptoms were temporarily relieved, and he improved for a time sufficiently to sit up in a chair. The old wound had been discharging occasionally during the previous few weeks. He had become markedly emaciated, and there was a decided accentuation of the bony irregularities, the clavicle tumor having become the size of an egg and pseudofluctuating. The entire sternum was enlarged and could be easily indented with the finger at any point over its entire surface. The left humerus, at the site of the fracture, was about three times its normal thickness. The ribs were markedly irregular in contour, and the chest had assumed a rectangular shape.

The first week in April, he developed bronchopneumonia. Death occurred April 14.

Necropsy.—This confirmed the diagnosis of bronchopneumonia as the immediate cause of death. Other notable changes were confined to the skeletal system. In the skull were numerous areas of softening, ranging in size from a

1. Wallgren, Arvid: Untersuchungen über die Myelomkrankheit, Upsala Läkaref. Förh. **25**:113 (Sept.) 1920.
2. Harbitz, Francis: Multiple Primare Svulster i Bensystemet (Myelosarkomer), Norsk Mag. f. Lægevidensk. **64**:1 (May) 1903.
3. Bradshaw, T. R.: On the Evolution of Myelopathic Albumosuria, Brit. M. J. **2**:75 (July 13) 1901.

dime to that of a quarter. The spinal column was normal. Other tumors were found, as previously described; but there were no tumors in the lower part of the body. Cut section of the clavicle tumor showed all bony tissue to have disappeared. The tumor was almost boggy in consistency, had a glistening appearance and was grayish pink with numerous reddish streaks throughout its substance. The smaller tumors had a thin body covering, the center resembling in general the clavicle tumor. The appearance of the sternum was particularly striking, being completely softened except for a thin parchment-like shell of bony substance around the periphery.

Microscopic Examination.—The clavicle tumor showed a structure composed almost entirely of cells, with occasional strands of connective tissue between the cell groups. A few blood vessels were present, with thin, ill-defined walls. The cells were fairly uniform in size and were composed mainly of two types. In one the cytoplasm was homogeneous and finely granular, with a rather marked affinity for basic stains. The nucleus was round or oval, was eccentrically placed and had a definite nuclear membrane. The chromatin showed a tendency to peripheral grouping, and in many of the cells, there was a reticular arrangement, with a definite chromatin nucleolus.

In the other type of cell, the cytoplasm had the same basophilic structure with indefinite outlines; but the nucleus was smaller, densely staining and was found either centrally or eccentrically placed. Several mitotic figures were present.

The urine, which was examined by Professor Hektoen, gave a positive reaction to chemical and precipitin tests for Bence-Jones protein.

BRONCHOSCOPIC STUDIES OF PULMONARY ABSCESS*

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The marvelous development of roentgenography has made it possible to outline the large branches and even some of the smaller subdivisions of the tracheobronchial tree. It has also in the hands of the expert roentgenographer made the localization of the infected lobe of the lung comparatively easy. At times the roentgenographer, when studying for definite localization of a pulmonary abscess stereoscopically, has interpreted it to be a large cavity surrounded by a dense zone of "pus sponge soaked" lung structure. Also levels of fluid and air bubbles in the cavity have been interpreted; in fact, the cavity or cavities may appear to be of enormous size.

In a series of cases of pulmonary abscess in which I collaborated with Dr. William H. Stewart, we found that, after bronchoscopic suction, evacuation of the involved lobe of the lung and immediate roentgenography, most of the pus sponge soaked lung shadow had disappeared. The interpretation of the roentgenograms made after suction evacuation had materially changed for the better; it was much clearer and the abscess cavity more readily localized than in the roentgenograms taken before bronchoscopic evacuation. The abscess could now be distinctly outlined, and often the branch bronchus with which it communicated. However, further studies were deemed necessary for even more accurate localization of the abscess, especially as to its size and shape, and this I accomplished by the bronchoscopic injection of a bismuth mixture in pure olive oil which would gravitate into and map out the abscess cavity.[1]

The air bubbles, "pus sponge soaked" lung, partial compression of the lung surrounding the cavity and normal lung structure, either anterior or posterior to the cavity, may at times, in my opinion, make roentgenographic interpretation even in the hands of the expert roentgenographer extremely puzzling, especially when bronchoscopic evacuation has not been made first, or when an opaque mixture has not been injected.

SYMPTOMATOLOGY

The symptomatology and physical signs are often misleading. The clinical picture is one of pneumonia, and the amount of purulent expectoration which is the most constant symptom is often the main factor in arriving at a diagnosis, especially when physical examination of the chest is made early and prior to roentgenographic findings. Bronchoscopy and roentgenography seem to be the greatest aids in arriving at a definite conclusion as to the localization of the abscess and to the branch bronchus into which it empties.

Dr. Otto M. Schwerdtfeger[2] has made all of the physical examinations on the patients at the Lenox Hill Hospital and gives the following opinion:

> The diagnosis of abscess of the lung is suspected whenever a patient expectorates sputum which contains evidences of destruction of lung tissue, and especially when the sputum is evacuated periodically.
>
> The physical signs are usually indefinite. There may be slight dulness, diminished breath sounds, and diminished voice, or a moderate number of moist râles with or without these physical signs. Occasionally bronchial breathing with increased voice sounds is found. Definite classical signs of a cavity are present only when the cavity is situated superficially, but this is the exception.
>
> Although the diagnosis of cavity formation can usually be made by the internist, he is absolutely dependent on the roentgenologist and bronchoscopist for the exact location, size and number of these cavities.

BRONCHOSCOPIC STUDIES

Bronchoscopic studies that were made in patients suffering from pulmonary abscess gave the following findings:

In early cases of pulmonary abscess one usually sees the mouth of the branch bronchus from which pus is oozing very edematous and almost completely closed. On attempting to insinuate the long slant end of the bronchoscope into this branch, free bleeding is the usual result. Often the mouth of the bronchus is covered by a thick, fibrinous slough, the removal of which also causes bleeding. The edematous stenosis and fibrinous exudate both tend to close the mouth of the branch bronchus and therefore cause retention of secretion. However, the small sinus which remains open continually discharges pus with the slightest cough and even on quiet expiration. In later cases this area of fibrinous exudate is replaced by fungating granulations. The granulations bleed easily, and are probably one of the most frequent causes of pulmonary hemorrhage in patients suffering from pulmonary abscess. Of course, vessels may become eroded in the abscess cavity and cause severe hemorrhage. I am not speaking of this, but I refer to the bleeding ooze which accompanies almost all of the foul expectoration in patients suffering for a few months. In cases of long standing, it is not at all uncommon to see cicatricial strictures, and in one

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Lynah, H. L.: Lung Mapping by the Injection of Bismuth Mixtures in the Living, Tr. Am. Laryngol., May, 1920.

2. Schwerdtfeger, O. M.: The Etiology and Treatment of Pulmonary Abscess, Proc. New York Acad. Med., February, 1921, discussion.

instance there was a partial web stenosis of the right stem bronchus in a boy who had suffered from an abscess for eight years.

EXPECTORATION

The amount of expectoration usually varies with the duration of the abscess, but may be of no great indication as to the size of the cavity. A small cavity may produce considerable secretion. The probable reason for this is that the secretion becomes soaked into the lung structure much as a sponge soaks up water, and this is the reason why I termed the area surrounding the abscess cavity the "pus sponge soaked lung." Therefore, the greater the area soaked with pus, the greater will be the amount of expectoration. In a few instances in patients who had small abscesses as much as 500 c.c. of pus was coughed up during twenty-four hours. In these cases there was an enormous area of shadow shown by the roentgenograms which was probably responsible for the enormous amount of expectoration. Lung drainage and the relief of the sponge soaked area seems to be the most rational way to relieve the patient, and this is best accomplished by bronchoscopic measures.

As I believe that most of the cases of pulmonary abscess in which the patients survive are due to aspiration,[3] I feel that they should be treated as aspiration or foreign body pneumonia, and be given a thorough bronchoscopic trial first, before radical major surgical intervention is attempted.[4]

CONTRAINDICATIONS TO BRONCHOSCOPIC EXAMINATION

Aside from a severe pulmonary hemorrhage, there are no real contraindications to bronchoscopic examination. Dr. Richard Jordan and I have performed bronchoscopy on many patients suffering from oozing hemorrhage due to fungating granulations, but this type of hemorrhage is readily overcome by an application of a thromboplastin preparation. Of course, one should wait when there is an alarming hemorrhage due to erosion of blood vessels. Rest in bed and the usual medical measures should be resorted to in order to control the persistent hemorrhage. The temperature is no contraindication even though it be very high. In one instance, a patient of Dr. Willy Meyer had a temperature of 105.2 F. at the time of bronchoscopic examination, suffered no discomfort, following the examination, and is still alive and rapidly improving. The examination was made without local or general anesthesia, a dose of morphin and atropin having been administered fifteen minutes prior to examination. The right upper lobe was found to be involved and almost completely closed with edema. The bronchoscopic suction evacuation, the duration of which was four minutes, improved the patient, and the temperature fell 2 degrees. This man was moribund, and the case was one of the worst in which I have ever had the good fortune to employ bronchoscopy. The patient has steadily gained in weight and promises to recover, but is still under bronchoscopic observation. Therefore, I feel that there are no real contraindications to bronchoscopy in pulmonary abscess aside from the one stated before: severe pulmonary hemorrhage. Dr. Willy Meyer agrees with me that the best time to employ bronchoscopy is when the patients are in the pneumonic stage before definite cavitation and destruction of the lung has taken place.

BRONCHIECTASIS

I have noted in several instances a stricture of the bronchus which after dilatation reveals a saccular cavity or bronchial dilatation below. These I have termed dilated bronchi or bronchiectasis, in distinction to the cavities within lung structure which have definitely broken down. The bronchial dilatations or bronchiectatic cavities have smooth walls, and the bismuth mixture maps out these cavities beautifully. Such is not the case, however, in the abscess cavities within lung structure which have ragged and irregular walls. The bismuth mixture will not give the same interpretation and mapping in these irregular areas as it does in those in which the bronchial dilatation is the chief site of the purulent collection. Strictures of the bronchi should be dilated, and this is best accomplished by bronchial bouginage. Mechanical divulsors are also of great aid, but they make much more traumatism to the bronchial wall than gradual dilatation with bougies. After bronchial dilatation, a suction cannula should be introduced into the bronchial cavity and by suction the contents of the cavity evacuated. This is readily accomplished when the bronchus is on a line with the bronchoscope and not around a corner. If suction is to be made around a corner, then the curved, spiral suction cannula should be used. The same cannula used for the injection of the bismuth mixture is ideal as a suction cannula in such cases.

ENTERING THE ABSCESS CAVITY

So far I have not been able to enter what I could definitely interpret as an abscess cavity. I have, however, entered, in many instances dilated bronchi, but these I do not consider true abscess cavities. In the first place, most of the patients who have come to the clinic for bronchoscopic study have abscess shadows, as revealed by roentgenograms, well out toward the periphery. Many of them involve the right upper lobe branch and are beyond the range of vision. Such abscess cavities in the upper lobes and around a corner are extremely difficult to enter, and many of them which seem to be true abscess cavities within the structure of the lung are located in this manner. However, it is not difficult to follow this lead by studying the edematous area and the region from which spring fungating and easily bleeding granulations. The curved spiral cannula will act as a valuable suction tube in draining the upper branches when the curve is turned upward, and it will help to drain the lower branches of the upper lobe when the curve of the spiral is turned downward after introduction and before the stilet is removed.

To use the cannula as a suction or injection cannula, it must first be coated with flexible collodion before introduction. This prevents leakage in either instance. The collodion does no harm, nor does it come off the curved spiral. It renders it water tight and does not hamper its flexibility. I have repeatedly stated that I have never entered what I could definitely call an abscess cavity, that is, one within lung structure with ragged walls. Pus is usually seen coming from the branch bronchus into which the abscess empties, and that is all that one ever sees. Pus may also be seen coming from a minute branch bronchus on a line with

3. Lynah, H. L.: The Etiology and Treatment of Pulmonary Abscess, Proc. New York Acad. Med., February, 1921.
4. Lynah, H. L.: Bronchoscopic Treatment of Bronchiectasis and Pulmonary Abscess, Med. Rec. 97: 215 (Feb. 7) 1920.

the bronchoscope, but too small to be entered even by a special 5 mm. bronchoscope. In such cases the small branch should be entered with a bougie to ascertain whether or not it be a stricture at the mouth of a dilated bronchus below. The small bougie can usually be readily introduced into this branch, and it can be dilated by twirling the handle of the bougie between the thumb and index finger. The bougie should never be advanced rapidly into the bronchus with a shove, for fatal traumatism may result. The small suction cannula is introduced after dilatation and the small branch evacuated.

One of the best controls of the improvement of a case of pulmonary abscess is the absence of bleeding when making bouginage and suction of the branch bronchus from which pus is oozing.

Aqueous solutions, when injected into the bronchi, are usually coughed up immediately through the bronchoscopic tube, and if the bronchoscopist is not a good dodger he will be bathed by the solution. Oily mixtures seem to remain in the bronchi much longer. In the cases injected with colloidal silver, the solution is usually sprayed out readily, provided it is injected slowly, as in the injection of the thick bismuth mixtures. However, on the other hand, if it is injected forcibly it will remain in the lung much longer. I do not advise the forcible injection of any solution. With bismuth mixtures a forcible injection will always spoil the picture. In washing the lung, as advised by Yankauer,[5] I have never been able to recover by suction but little of the solution injected. It is usually coughed out as fast as it is introduced. It no doubt has a very beneficial effect, for in many of the cases recorded by Yankauer the patients have not only been greatly improved but finally cured.

Since the last report on this subject,[6] there have been ten additional cases of pulmonary abscess studied at the Lenox Hill Hospital and observations made on the cases injected with bismuth subcarbonate in pure olive oil already reported. Of the five cases reported by Dr. Stewart and myself, three after a period of over one year have no symptoms or expectoration and may be classed as cures. The remaining two have greatly improved and have little expectoration. All of the patients seem to have improved after the bismuth injections. Many of them have been injected two and three times. One patient was injected four times with no ill effect. Dr. Stewart attributes the improvement and cure to the action of the roentgen ray on the metallic bismuth in the lung, and adds that the secondary ray has a very beneficial effect on the patient. I did not inject the bismuth mixture with any idea of its curing patients, but used it for mapping the abscess cavities for purposes of definite localization. However, Stewart has demonstrated that the effect of the roentgen-ray dosage after bismuth injection is what is improving the cases of long standing. I feel that in the early cases the drainage of the lung is the most important factor, and this has proved to be the case in all cases in which bronchoscopy was performed early. I feel that many clinicians often wait too long before they allow bronchoscopy to be performed. Many of them have the feeling that bronchoscopy is an exceedingly dangerous procedure, and therefore delay. Delay may prove fatal to the patient. Bronchoscopic examination should be performed on the first indication of purulent expectoration. If any one thinks that bronchoscopy is a dangerous and fatal procedure, I would ask him to come to the Bronchoscopic Clinic at the Lenox Hill Hospital and see for himself how the patients return and beg for bronchoscopy. They would keep Richard Jordan and myself busy every day in the week if it were possible to do so, for some of them ask if they cannot be treated oftener than once each week. I think that a bronchoscopic treatment once a week is sufficient, but this idea does not coincide with the views of many of the patients. Therefore, the relief obtained by bronchoscopic suction evacuation of a pulmonary abscess must be greater than one would suppose, or else we would not have the constant return of these unfortunate sufferers who seek relief.

I have so far performed bronchoscopy on thirty-eight patients suffering from pulmonary abscess. Nine followed the sojourn of foreign bodies; eight, tonsillectomies; ten, postdiphtheritic abscesses; two, lobar pneumonia; one an operation for gallstones; one, necrosis of the jaw. Three were of indefinite cause probably postinfluenzal. Two followed the aspiration of sea water, and there were pure cultures of colon bacilli in the expectoration. One in a boy was due to lymphosarcoma, and the other in a girl of 6 years with similar bronchoscopic findings was not diagnosed.

THE PROGNOSIS

The prognosis in the abscess cases following foreign bodies is good after the removal of the intruder, but bronchoscopy, suction evacuation and the dilatation of bronchial stenoses is often necessary many times before the patient is finally cured.[7] Of the nine patients with foreign body abscesses, two died and seven are still alive and well, but one has purulent expectoration from an abscess of eight years' duration following the aspiration of a blade of timothy grass. Two children who had suffered with generalized abscesses on the right side which involved all of the lobes of the lung for two and one-half years succumbed. One came to necropsy, and there was an extensive lymphosarcoma of the entire right lung. The lung was riddled with small miliary nodules and numerous small cavities, the macroscopic appearance of which simulated pulmonary tuberculosis. The pathologist at Lenox Hill Hospital, Dr. G. L. Rohdenburg, reported his findings as lymphosarcoma. The second patient, a little girl of about the same age, had similar bronchoscopic findings, but we were unable to demonstrate the nature of the pathologic condition, for the parents refused permission for necropsy. The bronchoscopic and clinical pictures were quite similar. No tubercle bacilli were found, and the probable cause of the lung destruction may have also been lymphosarcoma. There was pus coming from all of the branch bronchi of the right lung in both instances, and the bronchi were contracted and irregular. Three of the ten patients with postdiphtheritic abscesses died. In the cases following tonsillectomy, two of the patients died, one from rupture into the pleura and general septicemia, and the other from thoracotomy and pulmonary hemorrhage. Of the patients having abscesses following lobar pneumonia, one died from pleural rupture and pneumothorax. The other is alive and in good con-

5. Yankauer, S.: Bronchiectasis and Pulmonary Abscess, New York M. J. 103: 257 (Feb. 5) 1916.

6. Lynah, H. L., and Stewart, W. H.: Roentgenographic Studies of Bronchiectasis and Lung Abscess After Direct Injection of Bismuth Mixture Through the Bronchoscope, Am. J. Roentgenol. 8: 49 (Feb.) 1921; Ann. Surg. 73: 362 (March) 1921.

7. Lynah, H. L.: A Series of Foreign Bodies in the Bronchi and Esophagus, Tr. Am. Laryngol. & Otol., March, 1919; New York M. J. 112: 653 (Oct. 30) 1920.

dition, but still under observation. As to the three patients without definite history as to causation, but in whom the trouble probably followed influenza, one died after thoracotomy, and the other two are still under observation.

ETIOLOGY OF PULMONARY ABSCESS

I firmly believe that the great majority, if not all of the abscesses are due to aspiration.[3] Aspiration of infected mouth or nasal secretions following operations either under local or general anesthesia, especially the aspiration of vomitus either during or after operations under general anesthesia, seems to be one of the most potent factors in the causation of pulmonary abscess following tonsillectomy. Embolic abscess is usually a manifestation of a general pyemic process and is usually fatal. I cannot recall a single instance of an abscess which has come under my observation that has had the violent picture which is the accompaniment of embolic abscess. The very fact that the clinic is still filled with these patients, even though many of them still require bronchoscopic evacuation, would seem to point very strongly to the simplest cause—aspiration—as the chief etiologic factor in the production of pulmonary abscess.

Fig. 1 (Case 5).—Enormous amount of "pus lung soaking" and indefinite outline of abscess cavity in the right upper lobe.

Fig. 2 (Case 5).—After the injection of an opaque bismuth mixture into the right upper lobe bronchus. The bismuth fills the cavity and also outlines the bronchial branches.

REPORT OF CASES

CASE 1.—J. C., a man, aged 37, was operated on by Dr. Willy Meyer for gallstones. He aspirated vomitus during anesthesia, and developed a severe cough and profuse expectoration three days following the operation. The patient was in poor condition, and bronchoscopy was performed while his temperature was 105.2 F. No cocain was used. A dose of morphin and atropin was administered fifteen minutes before examination. The location of the abscess with a level of fluid was interpreted by William H. Stewart to be in the right upper lobe. Bronchoscopic suction evacuation was performed in four minutes. However, the patient was too weak for roentgenographic plates in the erect position for they could be taken only in recumbent posture. The bronchoscopic evacuation did no harm; on the contrary, the patient was apparently improved, for the temperature fell 2 degrees. After this, bronchoscopic suction evacuations were continued once a week. At the third bronchoscopy the lower branches of the right upper lobe were injected with a bismuth mixture. The opaque mixture interpreted a ragged cavity in the lower portion of the right upper lobe just above the line of the level of fluid interpreted before injection. Dr. Stewart thought that the abscess cavity had been missed by the injection, for it did not fill the cavity which had been interpreted in the roentgenograms before injection. However, I think that, in early cavities with irregular, ragged walls, such an interpretation is possible. It is quite different, however, when the cavity communicates directly with a dilated bronchus; then the bismuth mixture stands out in a very sharply defined cavity. The patient is still under bronchoscopic treatment. Bronchoscopy has been performed fourteen times, and he has greatly improved. There is very little pus expectorated, and he has gained 15 pounds in weight. He says that he has a cough only at night, when he coughs up about a tablespoonful of pus.

CASE 2.—W. G., a man, aged 44, was admitted to the Methodist Episcopal Hospital, Brooklyn, suffering from necrosis of the left jaw following infected teeth. He was operated on for the necrosis by Dr. Thomas B. Spence. He developed what was supposed from the amount of expectoration to be a pulmonary abscess ten days later. Roentgenograms taken by Dr. W. H. Wallace at this time showed a very dense shadow in the lower portion of the right upper lobe. Bronchoscopy was performed one month after development of the abscess; it would have been impossible prior to this time, for the patient was unable to open his mouth. The patient was not in grave condition following the development of the abscess; therefore it was deemed best to wait until he could open his jaw sufficiently for introduction of the bronchoscope by mouth, rather than perform tracheotomic bronchoscopy. It was difficult to introduce the speculum into his mouth, but after two loose pyorrhea teeth were extracted on this side there was sufficient room to admit the speculum. The patient was cocainized and the 7 mm. bronchoscope introduced. Pus was seen to be coming from the right upper lobe branch in considerable amount. After suction evacuation he was reroentgenographed, and at the second sitting one week later the lower branches of the right upper lobe were injected with the bismuth mixture in pure olive oil 1:2, 8 c.c. of the mixture being injected. After injection he was immediately sent to the roentgenographic room and instructed to lie on his right side and not to cough. Dr. Wallace made some beautiful pictures of the abscess cavity and the bronchus injected in the right upper lobe. Bronchoscopy was now performed once a week for three bronchoscopic evacuations and the patient was then reinjected with bismuth. The right upper

Fig. 3 (Case 5).—Bismuth mixture mapping the abscess cavity in the lower portion of the right upper lobe. Some of the bismuth has infiltrated into lung structure well up toward the apex.

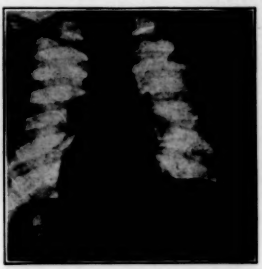

Fig. 4 (Case 5).—The condition of the lung after ten months. The lung abscess has completely disappeared. The small triangular area still remains in the upper portion of the lung. Compare the shadow with Figure 3, which shows that it gradually disappears, and with its disappearance the abscess is often cured.

lobe was dilated with a bougie before bismuth injection, for as in all of the cases it was partially occluded by edema and granulations. With a 5 mm. by 40 cm. bronchoscope the lower branches could be seen. The small curved spiral suction cannula could be readily introduced into these branches, which were demonstrated after the bismuth injection. Bronchoscopy has been performed seven times. The patient has not been treated by the roentgen ray, after the suggestion of Dr. Stewart, but has gained weight and steadily improved. However, he has had many roentgenograms taken and this may have acted, according to Stewart, by producing the beneficial effect of secondary radiation. There were no fungating or bleeding granulations present in the right upper lobe branch when bronchoscopy was performed, May 26, 1921, and there was only about a teaspoonful of pus recovered by suction. The pus was not foul smelling. The patient is steadily gaining in weight, and says he feels remarkably well. He is still under bronchoscopic observation.

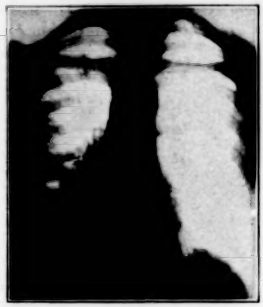

Fig. 5 (Case 3).—Dense lung shadow in the right lower lobe; markedly thickened pleura. The abscess cavities are not clearly defined.

Case 3.—C. D., a boy, aged 12 years, was admitted to the service of Dr. Willy Meyer at the Lenox Hill Hospital with a history of having had a lung abscess of eight years' duration following the aspiration of a blade of timothy grass. Bronchoscopy had never been performed for the removal of the foreign body, and he was given up as hopeless. Roentgenograms made by Dr. Stewart revealed the right lower lobe to be very greatly involved. The pleura was enormously thickened, and there was a triangular area in the lower portion of the right lung which was the site of numerous cavities. The cavities were not plainly visible in the first roentgenograms, nor was the localization anterior or posterior definitely determined even by stereoroentgenograms. After bronchoscopic suction evacuation, and reroentgenographic plates, anteroposterior and lateral, the multiple abscesses were interpreted by Dr. Stewart to be in the posterior branches of the lower lobe bronchus. The boy was in poor condition and extremely emaciated, there was marked clubbing of his fingers, and he was coughing up from 150 to 200 c.c. of pus each day. It was creamy and very foul. Before bronchoscopy, owing to the continued flow of pus, the boy was placed in postural drainage so that he was able to evacuate the excess of purulent secretion. Bronchoscopy was performed without anesthesia, 7 mm. and 5 mm. tubes being used. Pus continued to pour out of the tube mouth, but this was evacuated by suction and the tube passed to the carina. At this time pus was noted to be coming from the right bronchus with each cough in spite of the fact that the patient had been well drained by posture before the introduction of the bronchoscope. When we attempted to introduce the tube into the lower branches of the right stem bronchus it met an obstruction. After careful suction evacuation of the remaining pus it appeared to be a stenosis of the lower stem branch. This was later seen to be a partial cicatricial web which completely obstructed the view of the posterior branches. The anterior branches, however, were partly visible, and pus was in all of the branches. By divulsion the cicatricial stenosis was opened, but the 7 mm. tube could not be introduced into the posterior branches. After thorough suction for fifteen minutes the operation was discontinued. One week later a second attempt to enter the posterior branch was made after bouginage through a 5 mm. tube. It was much more successful than with the larger tube. Continued dilatation and suction evacuation was made until this branch was opened. It is interesting to note that, after thorough dilatation of the bronchial stenosis, the amount of expectoration was greatly increased, for perhaps the drainage of the bronchus was better. After the fourth bronchoscopy the posterior branches of the right lower lobe were injected with bismuth subcarbonate in olive oil 1:3. Eight c.c. of the mixture was injected. Some excellent roentgenograms were made by Dr. Stewart, both anteroposterior and lateral. The patient was also treated by roentgen ray. The boy was apparently improved after the first injection of bismuth and roentgen-ray treatment, but at the end of three weeks, as the bismuth had almost entirely disappeared from the cavities, he was reinjected with a mixture 1:2. The boy while under treatment gained steadily in weight and put on 12 pounds. However, the amount of expectoration did not decrease in proportion to his improvement. We still continued to evacuate the abscesses bronchoscopically once each week, and while the expectoration would apparently lessen and the odor disappear after Dr. Jordan had injected colloidal silver three times, nevertheless he would by measurement and postural drainage get out almost the same amount at each sitting. After thirteen bronchoscopies the mother decided that it was a waste of time for further treatment, and thought it best to take him home in the upper part of the state for a complete rest. I am unable to report on his present condition, but no doubt it is about the same as when he left us.

Case 4.—P. K., a man, aged 26, developed an abscess following lobar pneumonia. He had a severe attack, but weathered the storm, and continued to cough up large quantities of foul smelling pus. Bronchoscopy was performed by Richard Jordan, and after several bronchoscopic suction evacuations of the right upper and middle lobe branches his condition was greatly improved. The amount of purulent expectoration was apparently arrested, and he remained apparently well for six months, when he started to have pulmonary hemorrhages. The sputum was negative for tubercle bacilli at this time. He had two or three rather severe hemorrhages, and then was readmitted for further bronchoscopic study. At the time of admission there was considerable expectoration, which was tinged with blood. Bronchoscopy was performed, a 7 mm. tube being used. Many fungating granulations were seen in the right upper and middle lobe branches. The granulations were touched with 10 per cent. silver, and after gentle dilatation the lobe branches were sucked out. He returned home the following day. There was considerable reaction following the bronchoscopic examination. A high temperature was present, and Dr. Herman Meyer, who was looking after him while at home, elicited a patch of pneumonia over the right middle lobe. After the cessation and improvement of this attack, he was readmitted and further bronchoscopic studies were made. There was considerable blood coughed up while the direct application of cocain was being made to his pharynx, and Dr. Jordan and I decided that it was best to wait until he was in better condition before attempting further bronchoscopic treatment. One month later, by bronchoscopy, considerable pus was recovered from the right middle lobe branch. There were many granulations present which were again touched with 20 per cent. silver. After one month of treatment, that is, after four bronchoscopic

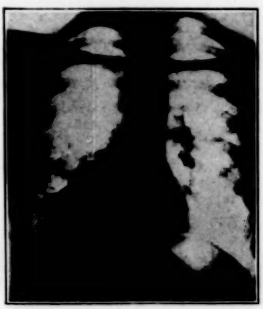

Fig. 6 (Case 3).—After bronchoscopic suction evacuation, and injection with bismuth mixture. Numerous cavities are definitely outlined in the lower lobe. The triangular area of thickened pleura and multiple abscesses communicated with the posterior inferior bronchus.

evacuations, the middle lobe branch was injected with the bismuth mixture in olive oil by Dr. Jordan. The opaque substance in the lung did not reveal any definite abscess cavity in the middle lobe from which branch pus was oozing. Bronchoscopy has been performed eleven times; and while the patient is greatly improved in general condition, there is still a small amount of expectoration. There have been no recurrences of hemorrhage. The patient is still under observation.

CASE 5.—E. E., a man, aged 24, was admitted to the Lenox Hill Hospital, June 18, 1920, his chief complaint being cough with profuse expectoration, as much as 500 c.c. of pus being expectorated each day. Tonsillectomy had been performed, June 5; six days later he developed a cough, which became productive on the ninth day. There were pains in the joints. June 23, a preliminary roentgenographic examination revealed a dense triangular area in the lower portion of the right upper lobe; in the center of this pus-soaked, spongy area of infiltrated lung tissue a fluid level with an air bubble above could be made out, indicating a large abscess. Bronchoscopy was performed, a 9 mm. tube being used. Pus was seen coming from the right upper lobe bronchus only. About 10 c.c. of bismuth subcarbonate in sterilized olive oil, 1:2, was injected into this branch; this was followed by roentgenographic examination, which showed the lower branches of the lobe outlined by the injection, but very little, if any, having passed into the diseased area (Stewart).

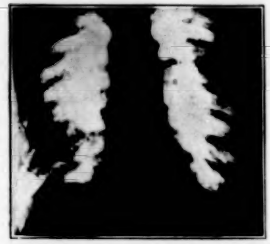

Fig. 7.—Large abscess of two years' duration injected with bismuth. The abscess communicated with an anterior branch of the lower lobe bronchus.

July 8, bronchoscopy was again performed. Pus was still obtained from the right upper lobe bronchus, which was again injected with the bismuth mixture. This time by fluoroscopy and stereoroentgenograms bismuth was seen outlining numerous cavities; some of the mixture had infiltrated into the lobular structure well out toward the periphery of the upper portion of the dense area (Stewart).

The quantity of sputum gradually diminished until July 19, when it had practically disappeared and the arthritic symptoms had greatly improved.

A stereoroentgenographic reexamination, July 26, revealed gradual disappearance of the bismuth except where it had infiltrated into lobular structure.

The patient has continued to improve from this time and has had no cough or expectoration. His lungs are negative to bronchoscopic, roentgenographic and stethoscopic examination ten months later. At this time roentgenograms taken by Dr. Stewart showed the lungs clear with the exception of a small bismuth patch still remaining well out toward the periphery. This is gradually disappearing.

This case has already been reported,[4] but it has been added to show the final outcome of one of the cases already recorded in the first series.

SUMMARY

1. From a study of the cases it will be seen that the earlier bronchoscopy is performed, the more likely is a patient suffering from pulmonary abscess to recover. The procedure should be employed with the first sign of purulent expectoration.

2. The longer the duration of the case, the more difficult it is to cure or even improve. However, all of the patients seem to improve in time as to the amount of expectoration, odor and general condition.

3. The constant dilatation of edematous and cicatricial bronchial stenosis is essential for proper lung drainage. All fungating granulations should be removed and the area touched with from 10 to 20 per cent. silver nitrate.

4. The injection of the opaque bismuth mixture will map out and localize the abscess cavity or cavities, and has also demonstrated roentgenographically that the cavities are not nearly so large as one would suppose.

5. The "pus sponge soaked" area surrounding the abscess cavity is most frequently responsible for the enormous amount of purulent expectoration, for this area must necessarily drain.

6. Bronchoscopic suction evacuation and reroentgenography of the infected lobe of the lung have been of the greatest aid to us in the definite determination of the cavity before the opaque mixture is injected.

7. Abscess cavities are extremely difficult, if not impossible, to enter around a corner. The author's curved spiral suction cannula will usually evacuate a cavity in this locality.

For suction or injection of the apical branches of the upper lobe, the curved spiral cannula is pointed upward before the stilet is withdrawn, and the procedure is the reverse when the lower branches of the upper lobe are to be injected or aspirated.

9. Roentgenographic treatment after bismuth injection seems to have improved each patient on whom it was tried. Dr. William H. Stewart believes that the secondary roentgenographic action has had much to do with the improvement and cure of some of these patients. Dilatation of bronchial strictures and the establishment of proper lung drainage and constant suction evacuation, I believe, also have much to do with the ultimate improvement of the patient.

Fig. 8.—Same patient, demonstrating the method of using the curved spiral suction or injection cannula in treating the anterior branch around a corner. The abscess has disappeared, and there is no trace of the bismuth mixture remaining. The patient, while cured, is still under observation.

10. I injected bismuth substances primarily for the purpose of lung mapping. It seems to have had a beneficial effect. So far we have seen no poisonous effects from the amount of the mixture injected (8 c.c. of a mixture of 1:2 in sterile olive oil), even though this amount has been injected four times in the same patient. Ten patients have been injected with bismuth, and so far it has done no harm. Colloidal silver has also been injected, and seems also to have been of benefit; likewise, it has done no harm.

127 West Fifty-Eighth Street.

ABSTRACT OF DISCUSSION

DR. WILLY MEYER, New York: With reference to diagnosis of pulmonary abscess, particularly the multiple variety seen in bronchiectasis: General examination, local exam-

ination, analysis of the sputum, etc., does not tell us exactly how far the process has advanced. Stereoscopic roentgenography and bronchoscopy show from which lobe or lobes of one or both lungs the pus is exuded. The bronchoscopist is the thoracic surgeon's best friend. Every large hospital in the country should have a trained and reliable bronchoscopist, a man who will not harm the patient. In smaller cities, the hospitals ought to combine and entrust these cases to one man. As to differential diagnosis, we must exclude tuberculosis and syphilis. It is my belief that almost every case of subacute lung suppuration is due to aspiration of either solid, semisolid or liquid material; also that abscess formation following pneumonia is usually due to aspiration of mucopus in the course of the disease. Regarding liquids, these may be stomach contents, aspirated during general anesthesia or gastric lavage; blood, resulting from tonsillectomy and other mouth and pharyngeal operations; pus or mucopus, as during pneumonia, and infected water. Dr. Lynah has described two cases of lung suppuration in boys who had aspirated water while swimming in the infected waters of the two rivers bordering New York. In both cases the colon bacillus was found in pure culture. Treatment, as everywhere else, is palliative and radical. The bronchoscopist should start his work as early as possible. Not long ago, a woman came under my care ten days after tonsillectomy done under general anesthesia, with high temperature, severe, continuous cough, sputum of bad odor, and other signs of incipient purulent affection of the lung. She was subjected to aspiration, and it was remarkable how completely the entire picture changed within less than a week. Of course, the introduction of the bronchoscope must be gentle. At Dr. Lynah's clinic, bronchiectatic patients often prefer introduction of the instrument without previous cocainization of the parts to be traversed. As to results, I feel sure that only early cases of chronic, nonspecific lung suppuration can be helped by means of aspiration. More advanced cases, patients who want to be cured, need surgical intervention, pneumotomy or lobectomy. It is the pressing task for those interested in this chapter of surgery to make these operations, particularly the latter one, less dangerous.

Dr. Chevalier Jackson, Philadelphia: I am delighted to note the cooperation between the bronchoscopist, the roentgenologist and the thoracic surgeon. If that cooperation can be established in every medical center, there will be a revision of prognosis in cases of abscess of the lung. Possibly, few cases will be cured by the bronchoscope; possibly, many. It is a matter for study and investigation. I most heartily corroborate Dr. Meyer's statement of concentrating bronchoscopic work for other diagnosis or removal of foreign bodies in the small community in the hands of one man who will equip himself for this special field of work. In each of the large medical centers a few such men are needed. Concentration of effort, and the cooperation of a bronchoscopist with a thoracic surgeon of such enormous experience as Dr. Meyer has had, will bring results obtainable in no other way.

Dr. Henry L. Lynah, New York: Dr. Meyer emphasized the importance of early bronchoscopic diagnosis in these cases, followed by dilatation of strictures and evacuation of pus. Bronchoscopic dilatation and evacuation is usually followed by increased amount of expectoration. Some of the patients react sharply, and there may be increased paroxysms of coughing and expectoration for several days. It is difficult to base a prognosis on a cure of any of these cases. The process, like pulmonary tuberculosis, may become arrested, but you have to keep track of these patients for a long time, for in a year or so the patient may start to cough and expectorate pus. As regards bronchoscopic cures, I heartily agree with Dr. Jackson. I do not think bronchoscopy is going to cure them all. The bronchoscopist does improve them, but so far as a cure is concerned, that has frequently to be left to the thoracic surgeon. When lobectomy is made a safe procedure, then all cases of pulmonary abscesses will end in recovery. In the injection of bismuth mixtures, both the insufflation method Dr. Jackson employs and my own were used to localize the abscess for the surgeon when he was going to operate. This is the only reason for our starting to inject the bismuth; not the idea of curing.

TUMORS OF THE PANCREAS*

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PASADENA, CALIF.

Primary tumors of the pancreas are rare. Of the known tumors of this organ, cysts, carcinomas, adenomas, sarcomas and lympomas are found in the order of frequency named. Of the solid tumors, carcinoma is the most frequent; sarcoma the least. Primary sarcoma is extremely rare.

Ziemssen, in 1878, said there was but one single authentic case of sarcoma of the pancreas, that reported by Paulicki,[1] in 1868. Some doubt has been thrown on this case from the fact that the patient, a young man, died from tuberculosis, and the reported tumor may have been a tuberculous lesion. Orth[2] says that primary sarcoma is almost unheard of. Since

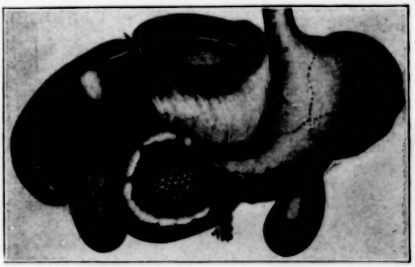

Fig. 1.—Drawing made from a careful dissection of the pancreas, showing its relationship to adjacent organs.

1887, there have undoubtedly been reported a number of well authenticated cases.

It is the purpose of this paper to discuss the diagnosis of pancreatic tumors and to report a case of sarcoma of the tail of the pancreas. The great rarity of sarcoma in this organ is believed sufficient justification for presenting this paper.

DIAGNOSIS

The diagnosis of pancreatic tumors is extremely difficult, and it is not possible to arrive at a correct diagnosis in a large percentage of cases, even after the employment of all modern methods. There are certain symptoms common to all tumors of the pancreas. These are: (1) pressure symptoms exerted by the tumor upon surrounding structures. The close proximity of the pancreas to the large vessels posteriorly and its intimate relation to the liver, stomach, duodenum, spleen and kidney give rise to a complexity of symptoms extremely difficult of interpretation Tumors of the head of the pancreas by pressure on the large vessels or the common duct may produce edema, ascites or persistent jaundice. Pressure on the renal veins has produced marked hematuria as reported by Ransohoff.[3] Pressure on the stomach and duodenum

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Paulicki: Allgemein Medicin Central Zeitung, 1868.
2. Orth, J.: Lehrbuch der speciellen pathologischen Anatomie, Berlin, A. Hirschwald 1: 904, 1887.
3. Ransohoff, J.: Pancreatic Cyst as a Cause of Unilateral Hematuria with Report of Case, Surg., Gynec. & Obst. 22: 275 (March) 1916

causes distention and apparent filling defects simulating tumor of the stomach on the roentgenogram, as in my case. Pressure on the solar plexus produces epigastric pain. Tumors of the tail of the pancreas give rise to fewer pressure symptoms, owing to the larger space offered for growth in this location and the freer mobility of the tail. Tumors of the tail, however, closely simulate those of the kidney and spleen. In addition to pressure symptoms there are: (2) fatty stools due to closure of the pancreatic duct, obstructing the discharge of pancreatic juice into the intestine. The failure of pancreatic juice to enter the duodenum may be determined by the administration of salol, the so-called "Signe de Sahli." In the normal individual phenol and salicin will appear in the urine soon after its exhibition. This decomposition fails to take place in the absence of pancreatic juice. Undigested muscle fiber in abnormal quantities has also been reported by a number of observers. (3) Sugar in the urine has been reported infrequently. (4) One of the most characteristic symptoms is rapid emaciation with cachexia and weakness. One of my patients lost 60 pounds in a year.

REPORT OF AUTHOR'S CASE

History.—W. F. M., a rancher, aged 62, was referred by Dr. H. P. Wilson of Whittier, Calif. His mother had died at 78, his father at 77. The patient's habits were good; he had had no serious illness, and no venereal infection. He had two children. In August, 1919, he began to have irritation in the throat, bad taste in the mouth and a sense of discomfort after eating. He was constipated and had lost 12 pounds in weight in two months. He had no pain; the appetite was good and he had no urinary difficulty.

Physical Examination.—The patient was anemic looking. The head, neck and chest were negative. The abdomen was tender. There was a nodular, movable mass in the left hypochondrium. This mass moved on respiration. There was no dulness on percussion, but a tympanitic note was heard over the tumor. The kidney and spleen were not palpable. Rectal examination was negative. The prostate was only moderately enlarged. The blood pressure was 130, systolic. Blood examination revealed: Wassermann, negative; hemo-

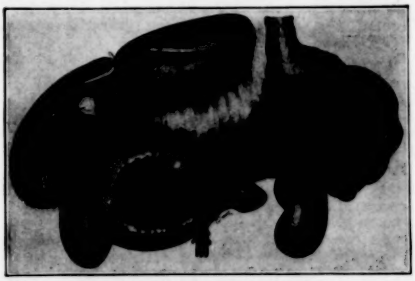

Fig. 2.—Tumor of the pancreas, involving the tail, reproduced from description of tumor and roentgenograms.

globin, 65 per cent.; red cells, 3,666,000; white cells, 8,116. There were no abnormalities in the red cells. There was moderate secondary anemia, not of the Banti type. The urine was normal except for a trace of indican. The stools were negative.

Roentgenographic Findings (Dr. Carl H. Parker).—"An opaque enema passed to the cecum without evidence of obstruction. The mass palpable in the left hypochondrium was above the transverse colon, which was apparently free from defects in outline. The splenic flexure was low, being just at the border of the ribs of the left side, suggesting the possibility of its being displaced downward by a mass from above.

"The following day an opaque meal was given. There was no evidence of obstruction in the esophagus, but as the meal entered the stomach a marked abnormality of outline involv-

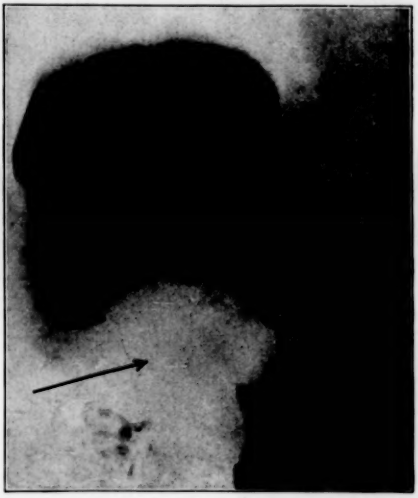

Fig. 3.—Defect in stomach, caused by pressure of tumor of pancreas.

ing the greater curvature of the cardiac end was apparent. On palpation the meal could be forced up into the cardiac end, giving what appeared fluoroscopically to be a normal outline. The stomach, however, seemed to be behind the palpable mass, which could be felt projecting below the left costal border.

"In a series of plates taken of the stomach there is a decided defect in stomach outline in the region of the palpable mass. The borders of the defect, however, are not so constant and regular as we would expect them to be, if the mass were a growth in the stomach wall itself. In the erect posture the bulk of the meal drops below the affected area, and in the cardiac portion of the stomach the rugae containing flecks of barium are apparent. The defect in the stomach outline is irregular, and appears to compress the stomach from in front rather than from the side, which I think accounts for the appearance which closely simulates that seen in carcinoma of the stomach wall itself. The pars media and the pyloric region of the stomach distend in normal fashion. The cap presents a slight defect on the basal border on the lesser curvature side, which I think is due to the gastrohepatic ligament. No abnormalities of either the small or large intestine were noted, except that the cecum and ascending colon present a considerably greater diameter than is usual."

Roentgenographic Diagnosis (Dr. Carl H. Parker).—"Mass in the left hypochondrium, causing a pressure defect in the outline of the stomach."

The mass was thought to be a tumor of either the stomach, kidney, pancreas or spleen. The roentgenogram excluded the stomach, and the urinary findings, the kidney. A probable diagnosis of tumor of the pancreas or spleen was made, and an exploratory operation was advised.

Operation and Results.—Through a long, left rectus incision joined by a transverse one, the tumor was well exposed. It involved about one half of the body and the entire tail of the pancreas. It consisted of many nodules varying in size from

that of a chestnut to that of an English walnut There were also several cysts filled with bloody fluid. One of these corresponded accurately to a filling defect in the stomach wall shown on the roentgenogram. Two cysts were punctured and a nodule excised for microscopic examination. The tumor

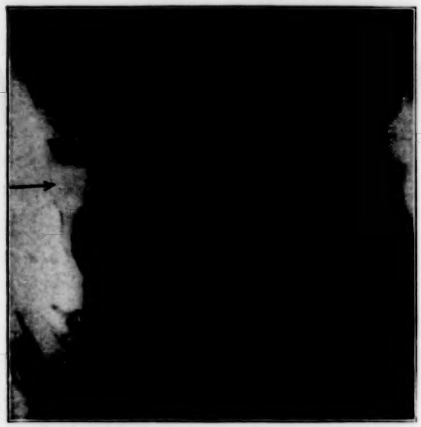

Fig. 4.—Indentation of stomach wall by hemorrhagic cyst.

was inoperable. The patient suffered considerable shock, but made a good operative recovery. He was given deep roentgen-ray therapy for six months, and during this time there was little change in his condition.

In August, 1920, he began to fail rapidly; metastases occurred in the supraclavicular glands. One of these metastatic tumors in the left supraclavicular region was the size of a hen's egg, hard, painless and movable. There were many other smaller masses. The patient failed mentally and developed an aphasia. He died the latter part of August, 1920. Unfortunately I was out of the city and failed to obtain a postmortem.

Fig. 5.—*a*, normal pancreas; *b*, tumor tissue.

Histologic Examination.—The tissues removed at operation were submitted to Dr. Stanley P. Black who reported as follows: "In the early sections run through in the ordinary manner the cells were so shrunken that the diagnosis was problematical. However, by making the changes from water to alcohol extremely gradual, I have finally secured sections which I can easily diagnose as sarcoma of the pancreas."

A section of this tumor was also submitted to Dr. Joseph C. Bloodgood of Baltimore for examination, and under date of May 8, 1921, he writes: "In one portion of the tissue we can recognize the glandular structure of the pancreas. The sections of the alveoli show, on the whole, compression. No cyst formation. No papillary cyst adenoma. The intralobular stroma much increased. In another portion of the section the pancreatic tissue is replaced by a very cellular tissue with considerable eosin staining intercellular material. These cells are, on the whole, round, rather of the endothelial type. There are no giant cells; no giant mononuclears. The morphology and arrangement of the cells is more that of a sarcoma than a carcinoma. It is not the picture of chronic pancreatitis."

COMMENT

The literature of sarcoma of the pancreas was carefully reviewed by Kakels,[4] in 1901. He was able to find but twenty-one cases reported in the literature. These included those found at necropsy. Of this number, there was an element of doubt in five of them. In only ten was the tumor reported primary in the pancreas. Of all the cases of sarcoma reported up to 1901, only three occurred in the tail of the pancreas.

Fig. 6.—Enlarged photomicrograph of tumor, showing cell structure.

Kakels failed to include the case report of Ehrmann,[5] who, in 1896, reported a case of primary sarcoma of the tail of the pancreas. The patient was a woman, aged 56, whose chief symptoms were epigastric pain, dyspnea and anorexia. At necropsy, a tumor of the tail of the pancreas, 7 by 7 cm., was found. Microscopically it proved to be a small, round-cell sarcoma.

My case was definitely a tumor of the tail of the pancreas.

Guleke[6] again reviewed the literature up to 1912. He does not report any cases of his own, but he collected thirteen cases reported in the preceding ten years. This author was able to find but twenty-eight cases of sarcoma of the pancreas up to 1912. Of these, four patients were operated on. Guleke refers to two cases reported by Ehrlich which were diagnosed as cysts and in which operation was performed.

4. Kakels, M. S.: Am. J. M. Sc. **123**: 471, 1902.
5. Ehrmann, J. E.: Tr. Chicago Path Soc. **2**: 157, 1896-1897
6. Guleke: Die neueren Ergebnisse in der Lehre der akuten und chronischen Erkrankungen des Pankreas, mit besonderer Berücksichtigung der entzündlichen Veränderungen.

Microscopic examination of fragments of tissue excised from the walls of these cysts showed them to be sarcomas. Guleke believes that such errors frequently occur.

Fig. 7.—Edge of hemorrhagic cyst shown in Figure 4.

Since 1912, I have been able to find references to but two cases of sarcoma of the pancreas. They are those of Constantine [7] and of Zagari.[8]

NOTE.—Since reading the above paper, I have submitted the slides of this tumor with the history of the case to Dr. E. R. Le Count of Chicago, and he questions the possibility of this being a primary tumor of the pancreas. He thinks it possibly a lymphosarcoma originating in the retroperitoneal tissues.

Citizens' Savings Bank Building.

ABSTRACT OF DISCUSSION

DR. JOHN J. GILBRIDE, Philadelphia: My experience with tumors of the pancreas has been with four cases of carcinoma of the head of the pancreas and two cases of pancreatic cyst. In the cases of carcinoma cholecystoduodenostomy was performed in two cases; cholecystostomy, one case; no operation, one case. A necropsy was performed in the last two cases. In the case in which cholecystostomy was performed, the duodenal wall was so soft that on attempting an anastomosis of the gallbladder with the duodenum the sutures pulled out. Therefore, the procedure had to be abandoned and external drainage instituted. In operating on patients with malignant disease of the head of the pancreas, one may perform the conservative operation of biliary drainage, either external or internal, for the relief of the jaundice; or when it is possible to do so, the radical operation of extirpation of the growth with involved lymphatics. It is rarely feasible to perform the radical operation. In the four cases of malignancy referred to, there was not any itching associated with the jaundice, which was shown by the absence of scratch marks on the body and verified by the patients. This led me to think that there might be a difference between jaundice due to malignant and nonmalignant disease, or, still further, that the absence of the itching could be explained by the absence of infection. Therefore, I concluded that infection is probably the cause of itching associated with jaundice. Sarcoma of the pancreas, as Dr. Lockwood has stated, is comparatively rare. The questions to be dealt with in malignant disease of the pancreas are, first, the diagnosis; second, the anatomic relationship of the pancreas to the surrounding structures, especially the relationship to the great vessels, when performing a radical operation; third, disposition of the remaining portion of the pancreas after partial pancreatectomy. So far as tests for the internal function of the pancreas are concerned, with the exception of the tests for carbohydrate metabolism there is not any of them of much value. The external function of the pancreas, with whatever information it may furnish, is accessible through the duodenum.

DR. CHARLES D. LOCKWOOD, Pasadena, Calif.: It is possible for us to diagnose many more cases of tumor of the pancreas than we have in the past. The distention of the peritoneal cavity with gas will outline most of these tumors and enable us to differentiate them. It was very clear that this was a tumor of the pancreas or spleen after eliminating the kidneys and the gastro-intestinal tract by the roentgen ray. It occurred to me at the time of the operation that if I had had some glass ampules of radium they could easily have been embedded in this tumor and, being sarcoma of the type greatly benefited by radium, it is quite possible that this tumor might have been destroyed, as the patient remained in practically the same state for over six months with no loss of weight. I think it is worth while considering the embedding of ampules of radium, and if I ever have another case I shall endeavor to do it.

7. Costantin, G.: Il sarcoma primitivo del pancreas, Tumori, Roma 1: 735-761,. 1912
8. Zagari, L.: Sopra un caso di sarcoma del pancreas, Tommasi, Napoli 7: 273-278, 1912.

XANTHOMA TUBEROSUM MULTIPLEX IN CHILDHOOD

WITH VISCERAL AND TENDON SHEATH INVOLVEMENT *

FRANK CROZER KNOWLES, M.D.
AND
HENRY N. FISHER, M.D.
PHILADELPHIA

In 1913, one of us [1] read a paper before the American Dermatological Association with the title, "The Pathology of Xanthoma Tuberosum Multiplex." The present article will deal chiefly with this disease in childhood and the occurrence of xanthoma lesions of the viscera and tendon sheaths.

Hutchinson, Sangster and Crocker,[2] in 1882, compiled and tabulated thirty-six cases of this disease, of

Fig. 1.—Tumors over Achilles tendon and ankles.

which eight developed under the age of puberty. Török,[3] in 1893, gave a résumé of seventy cases of this

* Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Knowles, F. C.: J. Cutan. Dis., April, 1914.
2. Hutchinson, Sangster and Crocker: Tr. Path. Soc. London 33: 38, 1882.
3. Török: Ann. de dermat. et de syph., 1893, pp. 1109, 1261.

condition, of which thirty appeared under the age of 16 years. In this series, three were given as congenital, three appeared either two or a few months after birth, one developed at 1 year, another at 2 years, two at 3 years, one at 4, three at 5 years, one each at 6 and

Fig. 2.—Tumors in gluteal region.

7, four at 10, one each at 14 and 15, and the age was not mentioned in seven.

Since Török's paper, the few examples of the disease reported in children by James, Winfield and Potter, Macleod and others, with the exception of those recorded by Low [4] and by Feulard, resembled clinically urticaria pigmentosa rather than tuberose type of xanthoma. This comment could likewise be made in regard to several instances tabulated in the articles of Hutchinson, Sangster and Crocker and of Török.

Certain instances have been recorded in which there was a family tendency to the disease, notably by Startin, MacKenzie, Hyde, Köbner, Hutchinson and Thibierge.

Visceral or systemic disease was present in twelve of the cases recorded. The following abnormalities were reported. In Low's patient, the physical signs were a systolic murmur and enlargement of the liver; Poensgen's patient had stenosis of the aorta; Pollosson's patient had a systolic murmur at the base of the heart; Vidal's patient had a mitral regurgitation; Gwynne's two cases gave the signs of mitral murmurs; Colcott Fox's patient had a mitral murmur, but in addition a history of rheumatism; Crocker's patient had an arthritis, and Barlow's patient had hypertrophy of the liver and hereditary syphilis.

Proof, however, as to the presence of xanthoma lesions in the vascular system has been confirmed in two instances, namely, by Lehzen and Knauss, and by Pavy and Fagge.

A girl, aged 11 years, exhibited lesions on the elbows, the buttocks, the knees and the feet, tuberose in character. Some of these nodular masses were attached to the tendons of the fingers and the Achilles tendon. The child had a mitral systolic murmur and suddenly died. A careful postmortem examination disclosed yellowish patches on the mitral valve and in the aorta, which were proved microscopically to be xanthoma.

Lehzen and Knauss reported a case almost identical to Low's.

Pavy and Fagge recorded a case in an adult with skin and tendon lesions and a mitral murmur. This patient subsequently came to postmortem and xanthoma lesions were found in the left auricle, the aorta and the pulmonary, innominate and carotid arteries. Apparently also in Moxon's case of xanthoma, lesions on the aorta, described as atheromatous, were of the same character as those on the skin.

According to Low, "taking these facts into account with regard to heart lesions in generalized xanthoma, justification is given in coming to the conclusion that in his case the heart murmur was due in all probability to xanthoma lesions in the aorta."

Tendon sheath involvement has been observed in ten cases in children of 12 years and under, namely, by Branchet and Monnard, Ehrmann, Feulard, Gwynne (two cases), Hyde, Lehzen and Knauss (two cases), Poensgen and Low.

REPORT OF CASE

An Italian boy, aged 10 years, came under our observation in April, 1920, and was subsequently treated in the skin dispensary of the Pennsylvania Hospital and later in the wards of the Children's Hospital. He had been apparently well until three years before, when he complained of vague pains in the knees from time to time. Shortly after this, small, yellowish nodules appeared about an old vaccination mark, and similar growths then developed on the buttocks and over

Fig. 3.—Proximity of tumor elements to epidermis, as shown under low power.

the malleoli and more recently over the elbows. The child had been somewhat short of breath on exertion for several years. There had been no previous illnesses, with the exception of measles.

Various tests were tried out which gave the following results: The von Pirquet test was negative, as was also the Wassermann test. The urine was negative and the various blood examinations detected nothing abnormal.

4. Low: Brit. J. Dermat., 1910, p. 109.

A roentgen-ray examination gave no evidence of the probable character of the growth found by the physical signs. The heart showed nothing abnormal in the roentgenograms.

The father, the mother and three other children are living and well with no abnormality of the skin.

A careful physical examination revealed abnormalities in the heart, the abdomen, the skin and certain tendon sheaths. There was a loud systolic murmur. The abdomen exhibited no pain or tenderness, but a mass was felt just below the

Fig. 4.—Xanthoma cells viewed under high power.

left costal margin which descended with respiration and could be rolled under the fingers and felt as if it was a part of, or attached to, the spleen.

The vaccination scar on the left arm was surrounded by a raised area of an orange-yellow color and consisting of pea-sized nodules. There were also tumors varying in size from a pea to a walnut, mostly isolated, but a few coalescing, looking very much like a mushroom or fungus growth, with a curious orange-yellow color, situated with marked symmetry on both elbows (extensor surface), both internal malleoli, over both Achilles tendons, on the flexor and extensor surface of the knees and on the buttocks. Those on the Achilles tendons were the largest, more of the color of normal skin than the others, and had a very hard base. They were of the same size, namely, 6 cm. in length, 4 cm. in width, and elevated 3 cm. above the surrounding normal skin. The mass on the buttocks measured 3 by 3 cm., with an elevation of 0.5 cm. Most of these tumors were situated at points of irritation, and none of them were painful. There were also small, firm nodules apparently attached to the tendons on the extensor surface of the second and third phalanges of each hand, and also on the flexor surface of the left wrist over the carpal bones.

One of the tumors was excised from the left Achilles tendon region, June 9, 1920, by Dr. Jopson, who reported that the growth was of a saffron-yellow color and contained an excess of indurated and hypertrophied connective tissue extending beyond the corium to the sheath and apparently to the tendon of the gastrocnemius muscle.

MICROSCOPIC APPEARANCE OF SECTIONS

Practically the whole excised area consisted of the "tumor," only a small portion of normal skin being included on either side.

The epidermis was normal at the edges of the section apart from the "tumor." There was a scant amount of keratin on the surface. All the cell layers were properly represented. The number of layers average seven or eight, and interpapillary pegs were exhibited. Over the tumor the same general appearance was preserved except for (1) a slight thinning (there were two less layers of cells), and (2) a loss of the interpapillary peg formation in great part.

The corium showed that the pars papillaris had the normal loose fibrillar texture through most of the section, save where replaced by "tumor" tissue. The stratum reticulare exhibited collagen bundles of normal appearance only at the sides of the sections. Here there were one or two small but normal appearing hair follicles, and a few groups of sweat glands. The blood vessels showed a slight swelling and proliferation of their endothelial linings, and there was a scanty infiltrate of lymphocytes around a few of these channels.

The "tumor" occupied by far the greater part of the section, measuring from 8 to 10 mm. in width and extending 5 or 6 mm. into the subcutis. It was separated for the most part from the epidermis by a thin layer of the pars papillaris, but at times its elements, generally "xanthoma cells," came into actual contact with the basement membrane above and below the limits of the biopsy. Laterally it gradually merged with the adjacent collagen bundles of the corium.

The "tumor" consisted of three portions: The first element consisted of slender collagen bundles which interlaced in all directions either as individuals or as fasciculi. Their nuclei were much plumper than normal, and certainly more closely placed, i. e., hyperplastic. Certain portions of the collagen strands were traceable into and continuous with xanthoma cells

The second element was the well-known "xanthoma cell." It occurred singly, in chains and in masses in connection with the collagen strands They tended to appear in tracts, adjacent to and paralleling the collagenous bundles, although some of the massed xanthoma cells were grouped around the hair follicles Close inspection generally revealed a narrow compressed capillary in the axis of the tract or adjoining the groups of these cells The xanthoma cell had a typical appearance, with polygonal contour, rarefied, finely granular cytoplasm and a small, solid, either central or eccentric nucleus. In the examination of this first series of sections only a few multinuclear forms were found, and not of the extreme giant-cell formation.

The third element is comprised of the capillary blood vessels. These channels were considerably increased, and their endothelium lining proliferated. There was a region in the center of the tumor where dozens appeared in a single microscopic field.

Sections made from a tumor removed from the Achilles tendon area showed not only the more common type of xan-

Fig. 5.—Fibrous and vascular part near center of tumor.

thoma cells but in addition many giant-cell formations. These cells were arranged in narrow or broad tracts, were found farther from the epidermis, in other words lower in the corium, and were found also in the subcutaneous tissue and extending into the Achilles tendon. In many instances these xanthoma cells were found surrounding the capillaries like a mantle, and practically all of these cellular groups were richly vascular.

COMMENT

Two cases of this rare disease have now been studied thoroughly, by one of us, one in an adult and the other in a child, and clinically and microscopically they have been exact counterparts, with the one exception that in the present instance (the child) there was visceral involvement.

No conclusions can be drawn as to etiology and no theories are mentioned, for as yet we are as much in the dark as when this disease was originally described by Rayer, Addison and Gull, and W. F. Smith.

ABSTRACT OF DISCUSSION

DR. WILLIAM ALLEN PUSEY, Chicago: A number of years ago I reported a peculiar case of xanthoma tuberosum multiplex—which was not urticaria pigmentosa. This case was in a boy; it began when he was 8 or 10 and he was under my observation during adolescence. In this boy there was disturbance of the pituitary, with extreme polyuria. He had xanthoma lesions in the most unexpected places. He had one on the cornea that was as large as a half section of a good sized hazelnut. He had some lesions in the larynx that almost brought him to the necropsy table. They caused so much stenosis and so much obstruction to breathing that he nearly died before we discovered what his real trouble was, but after a tracheotomy he got back to the state of a healthy boy. I think that after seeing a lot of bizarre cases of xanthoma we can say of its clinical manifestations what a distinguished pathologist said many years ago of the pathogenic activities of the pneumococcus: "It can do anything it pleases." I think xanthoma lesions might be found in any solid tissue of the body and in any location.

DR. FRED WISE, New York: Has anything been done experimentally to eliminate the supposed causal factors—for instance, the elimination of cholesterol, if that is a causal factor?

DR. WALTER J. HIGHMAN, New York: The only item on record is an article published in the *Dermatologische Wochenschrift* five or six years ago by Selenew, in which he proved that an excess of cholesterin ingested, plus local trauma of the skin, which he produced in rabbits by placing setons under the skin, produced xanthoma lesions at the site where the setons were placed. Of course, we are not born with congenital setons in the skin, but I should think that, with due honor to Dr. Sutton's theory of focal infection, we might try to determine whether xanthoma lesions might be produced along those lines so that Dr. Wise and the rest of us could get some information. Dr. Knowles' paper arouses an effort to remember how often we have seen cases of this sort in children below the age of puberty. So far as I can recall, I do not believe a year has passed in the last ten years that I have not seen a case before the societies in New York, and these cases were not urticaria pigmentosa. I do not know what the experience of others has been, but we have not considered it such a rare condition.

DR. FRANK CROZER KNOWLES, Philadelphia: In looking over the case reports we found that in many cases the lesions were just spots on the skin occurring universally, but were reported at that time as xanthoma tuberosum multiforme.

Reduction of Mortality in Puerperal State.—In administrative efforts directed toward reducing the mortality in the puerperal, including the pregnant, state, not only deaths from puerperal infection, but causes under all other rubrics, must be analyzed, both as to the environment and as to the obstetric personnel under which they occur in different kinds of women. It is likely that at least in the United States, the personal attendant is generally the most important factor. Those physicians and midwives who have consistently high maternal or infantile death rates would become evident, and could be dealt with appropriately.—W. T. Howard, Jr., *Am. J. Hygiene* **1**:231 (March) 1921.

THE THERAPEUTIC ASPECT OF IRRADIATION IN SUPERFICIAL MALIGNANCY *

ALBERT SOILAND, M.D.
LOS ANGELES

In the field of skin therapy, no agent has received more attention in the last decade than irradiation. Particularly is this true of the energy of radiation derived from roentgen rays and radium. The emergence from darkness and the evolution of this unseen force have been accompanied by many baffling, and at times discouraging, phenomena; and both comedy and tragedy have characterized the writings that have accumulated during the brief lifetime of this medical discovery.

A certain number of our enlightened medical fraternity still honestly question the therapeutic adaptability of irradiation, but it is evident that the great majority of medical men have accepted and placed a personal valuation upon this agent, in proportion to their individual knowledge of its potency. Nothing like unanimity of opinion exists, however, in regard to its applicability to given conditions, and it is not strange that considerable confusion exists in our minds as to the exact method to pursue in combating a certain malignant skin lesion, since we are confronted in medical literature with such widely varying opinions, theories and methods of procedure. This unfortunate situation has been brought about, not so much by any lack of knowledge of the essentials of our subject as by the mass of new and fragmentary information constantly being divulged at a rate which makes assimilation and adjustment to newer methods a process of considerable magnitude and concern.

It may serve to bring about a somewhat clarified vision of the whole matter if we enter here into a practical discussion of the rationale of this subject from its present broadening status.

In dealing with superficial malignancies, it was my custom for many years to use a rather conservative technic, to take a sufficiently safe middle ground position between the soft ray small fractional dose method and the hard ray single intensive application, more recently advocated. This method proved a fairly satisfactory one, and met with results which were in the main comparable with those of other active radiologists. In the last four years, however, I have gradually increased the hardness of the rays and adjusted the time and technical factors in line with the development and accumulated knowledge of the science.

In this discussion, irradiation from both the roentgen rays and radium will be considered alike, as they are employed in my office in similar wave length so far as it is possible to secure this result. In other words all soft says are screened out, only hard beta and gamma rays are employed, and the two sources of radiation used conjointly, each one being selected for the field where it can most conveniently be applied.

The action of irradiation upon cell bodies is no longer a question of dispute. There is ample and

* Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

irrefutable evidence that cancer cells may be completely destroyed, even when situated at a comparatively remote distance from the surface irradiated, without any permanent injury to the overlying normal cell structures. Whether this is accomplished by inhibitory or direct lethal action on the sensitive and specialized pathologic cell body, or whether it is due to a secondarily reconstructive and stimulating action may be left open for further discussion. For our purpose, it will suffice to recognize the fact that a reorganization occurs along the lines of least resistance, with a more or less normal structure as a residual end result.

The rationale of treatment, then, is to ascertain the extent and exact location of a cancer area, and to apply to this area sufficient irradiation to insure the death of every pathologic cell within this field—a single cancer dose if possible. One must carefully distinguish between an erythema dose and a cancer dose. An erythema dose, when it is obtained with a gamma ray, may be an efficient cancer dose, but an erythema dose administered by soft ray technic may not only fail to destroy cancer cells, but may actually serve as a stimulus and promote cancer cell proliferation in the underlying structures. Such an eventuality, while not proved, is a decided possibility, and its bearing upon the case must not be lost sight of. It illustrates the truth of the statement that in no field of endeavor is it more necessary to have a comprehensive knowledge of the whole science of radiotherapy than in superficial malignancies.

As to the location of surface cancer, no single area is free from invasion. The face and head, however, seem to be most vulnerable. In this field, cancer of the lip is perhaps the most important, and calls for more than ordinary good judgment in its treatment. While primarily a superficial lesion, its close association with the floor of the mouth, tongue and lymphatic channels soon converts it into a metastatic and generalized cancer, unless we succeed with our initial treatment. When such a case is attacked, it is not sufficient merely to make a casual application of radium or roentgen ray to the lip. Here it is of the utmost importance to lay down a radiation barrage which shall include every gland-bearing area in the jaw and neck, and through which not a single malignant cell shall escape. Lesions around the eye or on the nose—and their number is legion—grow by extension and rarely metastasize. In a case of this kind, it is also necessary to destroy all malignant tissue as rapidly as possible.

It is essential, of course, to exercise great care when exposing skin areas overlying bone and cartilage, particularly on the nose and ears. With properly regulated dosage, however, these areas may be freely treated. A word of caution concerning the irradiation of plantar warts may be of value. One should be sure to allow sufficient time to elapse between treatments, as this region is prone to show a delayed reaction, which may mean overdosage and a resultant ray necrosis with a very prolonged and painful period of convalescence.

It is taken for granted that no skin lesion other than a malignant one has been concerned in the present discussion; yet there are many conditions, primarily benign, that with age or added irritation may take on malignant characteristics. Keratotic and seborrheic patches are the most common types of this character. In such cases, we are fully justified in applying irradiation. Many of these, however, yield readily to simple and easily applied therapeutic measures, principally mild escarotic salves, carbon dioxid snow, electrolysis, fulguration and minor surgery.

The question of surgery is an important one. Many surgeons rightly feel that cases are often irradiated which could more readily have been treated surgically. Surgery is, however, rarely required in the cases enumerated, but when plastic or reconstructive work is demanded, it should always be given first consideration, either alone or in combination with irradiation. The habit of cutting out a small piece of tissue for microscopic study is a pernicious one, unless it forms part of a complete operative procedure, and with our present knowledge of malignant disease, it should not be required as a diagnostic aid. If the case is clinically malignant or on the borderline, it calls for irradiation irrespective of laboratory findings.

While attending a skin clinic recently where radium was the topic of conversation, I overheard one physician say that he thought he would invest from five to ten thousand dollars and go into the "radium game." This remark unfortunately reflects the attitude of a number of medical men, who look upon this subject wholly as a sporting proposition: in other words, a game in which a certain investment will insure an easy and quick return. No doubt a few individuals may succeed, at least temporarily, in this questionable effort; but, happily, he who experiments with radiation soon realizes that he is dealing with a two edged sword, which he either lays down carefully or else learns to use in a manner which will insure his own selfrespect and redound to the benefit of his patients.

The modern radiologist has had ample opportunity to study both indications for and the effect of irradiation in superficial malignancies, and he does not hesitate to affirm that his method has accomplished more than any other medicinal agent heretofore produced to combat these unsightly and serious lesions.

527 West Seventh Street.

A CLINICAL STUDY OF CARCINOMA OF THE NOSE *

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KANSAS CITY, MO.

Recently, in checking over a series of approximately 1,000 case records of cancer of the head and face, I was surprised to find that, in more than 25 per cent. of the patients, the nose alone had been involved. A brief survey of the literature on the subject disclosed only one similar report, Broders,[1] who found that in about 19 per cent. of his patients the lesions were confined to this particular locality.

The object of this communication is not to present a statistical study, however, but to emphasize the outstanding clinical features in a small number of selected and typical cases, and to outline the methods of treatment which we have found most practicable and dependable. At the outset, I wish to say that the

* Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Broders, A. C.: Basal-Cell Epithelioma, J. A. M. A. 72:856 (March 22) 1919.

apparently disproportionate frequency of nasal involvement is probably due as much to the desire of the afflicted individual to secure early relief from a conspicuous and distressing deformity as it is to any preexisting regional hypersusceptibility. In other words, a lesion which might attract little or no attention on some other part of the face calls for prompt medical intervention when located on the nose.

Of the fifty patients whose cases were selected for this particular report, thirty-six had spent all, or nearly all, of their lives on farms or ranches. Forty-two (84 per cent.) were males. More than one half (twenty-nine individuals) of the total number suffered from long standing, dry seborrhea ("sailor's skin").

The anatomic location of the lesions varied. The tip was attacked most frequently (in twenty-eight instances), and the base of the nose only once (following a dermoid cyst). The upper lateral surfaces were occasional sites (in five cases), usually following injury from spectacle or eyeglass frames or clasps, and the median lateral four times.

malignant lesions. Syphilis as a predisposing factor is of far less importance here than in lesions of the mucous membranes.

A microscopic examination was made in only five instances. All of these tumors were of the basal-cell type. Clinically, forty-three of those remaining belonged in the same category.

Of the two prickle-cell growths, one developed on the tip of the nose, following injury, the other at the lower left alar angle, without appreciable cause.

The prognosis is dependent on the character of the growth, its location, and the degree of structural involvement. In carcinomas of the prickle or squamous cell type, the outlook is always serious. Even with prompt and radical treatment, more or less tissue destruction is bound to occur. Growths of the Krompecher type are as a rule easily eradicated, provided the cartilage and periosteum are not involved, or the contiguous tissues are not destroyed or irreparably damaged by long continued irradiation or the unskilled use of arsenic, zinc chlorid and similar escharotics.

Fig. 1. — Basal-cell carcinoma of nose which developed following the forcible removal of an "ingrowing hair."

Fig. 2. — Basal-cell carcinoma, involving skin and cartilage; condition aggravated by long continued but inefficient roentgen-ray treatment.

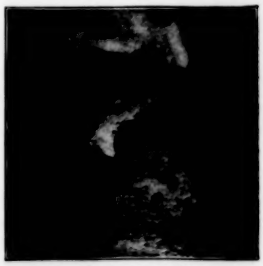


Fig. 3. — Basal-cell carcinoma of nose; lesion developed following injury from eyeglass clasp.

The bridge itself usually escaped. Involvement of the lower, lateral surfaces was fairly common (eight cases), and in this locality destruction of cartilage occurred in all of the advanced and neglected cases. In two instances, both of the patients being middle aged women, carcinomas developed in persistent fissures located at the anterior angle of one of the nostrils.

Consideration of the predisposing etiologic factors showed that long-continued and repeated sunburn, with or without the ensuing development of seborrheic keratoses, was undoubtedly the most common.

Trauma stood next, the injuries varying in character and degree from the slight bruises due to the forcible expression of comedones to incised and lacerated vocational wounds.

Frostbite, an occasional factor in the development of keratoses and cancer of the ear, was not noted in this series, although I have seen a few cases in which damage from this source undoubtedly was of causative import.

Carcinomas arising from nevi in this locality are rare.

The forcible removal of "ingrowing hairs" may be followed by the development of suspicious or frankly

The plan of treatment to be pursued is, of course, wholly dependent on the character of the growth to be attacked, and for this reason a correct diagnosis at the outset is of vital importance to the welfare of the afflicted patient. In the destruction of prickle-cell carcinomas we have found the knife cautery, followed by radium or the roentgen ray (employing a Coolidge tube, and exact dosage) best. It is wiser to pursue a radical course in these cases, depending on subsequent reparative work to hide the ensuing deformity, than to do a half-hearted job, and totally fail to benefit the patient's condition. On the other hand, the free and liberal use of the actual cautery in the average case of Krompecher's carcinoma is little short of criminal, for in dealing with these comparatively benign growths, more satisfactory results can be secured by the employment of much milder methods. It is from patients suffering with this type of tumor that the "cancer quack" reaps his harvest, for the removal of the little growth, together with several square centimeters of adjoining healthy skin, is easily, promptly and painlessly (?) accomplished by means of one of the old fashioned chemical pastes. The promiscuous and unskilled use of remedies of this kind is to be deplored, for they frequently accomplish

more damage than an untreated carcinoma. The greatest danger, however, lies in partial destruction of the growth, with erosion (and subsequent cancerous involvement) of the underlying periosteum. When this occurs, the probability of future cure, by any means, is enormously decreased.

In attacking uncomplicated cases of the basal-cell type, we have found, after long and diverse experience with all sorts and methods of treatment, that curettage, immediately followed by the application of liquor hydrargyri nitratis, as originally recommended by Sherwell, neutralized, three minutes afterward, with sodium bicarbonate, with subsequent radium therapy, the most satisfactory and dependable. In some instances, it is probable that the application of the caustic alone to the exposed base and margins of the wound would bring relief, but the use of radium undoubtedly greatly increases the percentage of permanent cures. As suggested by MacKee[2] and by Hazen[3] in their discussion on the roentgen-ray treatment of tumors of this type, unscreened or thinly screened rays are preferable to heavily screened ones, probably because of the comparatively superficial character of the growth. We have found that repeated short exposures give better cosmetic results than single, heavy ones, probably because of the greater ease with which the reaction can be controlled. In those cases presenting cartilage involvement, excision is preferable to radiotherapy.

Fig. 4.—Deplorable result which followed the use of a "cancer paste" in a case of superficial basal-cell carcinoma of nose.

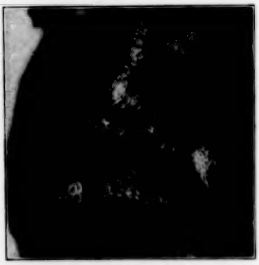


Fig. 5.—Basal-cell carcinoma of nose, involving periosteum; condition greatly aggravated by unskilled use of arsenic "plaster."

1034 Rialto Building.

2. MacKee, G. M.: Roentgen Ray and Radium in the Treatment of Basal Cell Epithelioma, J. Cutan. Dis. **37**: 179 (March) 1919.
3. Hazen, H. H.: Roentgen-Ray Treatment of Cutaneous Cancer, J. A. M. A. **76**: 1222 (April 30) 1921.

Physicians and Civilization.—Spanish newspapers comment on the aid rendered by physicians in their pacifying task at Morroco. The friendship of many Moors was obtained through medical assistance rendered them. It seems that during the recent uprising, the Moors were deprived of a complete success through one of the chiefs failing to join in the movement. This chief, Abd-el-Kader, used to be one of the most bitter enemies of Spain. When he was taken sick some time ago with a diffuse phlegmon in the throat, the Arab healers declared his case hopeless. A Spanish surgeon, Dr. Bonet, offered to operate on him in his own home as Abd-el-Kader thought he would be put to death if he came to the Spanish stronghold of Melilla. He got well and ever since has been a loyal Spanish partisan.

PRIMARY SARCOMA OF THE UPPER LIP

REPORT OF CASE*

S. E. SWEITZER, M.D.
AND
H. E. MICHELSON, M.D.
MINNEAPOLIS

Modern textbooks on surgery and on neoplasms do not mention primary sarcoma of the lips. A. J. Markley,[1] in 1913, reviewed the literature, referring to the cases of Coley, Maunsell and Langston. Our case is the only one reported that occurred on the upper lip. No reports have been recorded since Markley's.

The case reported here is of interest because of the rarity of the condition, and it emphasizes the possibility of primary sarcoma occurring on the lips and the need of considering such a condition when making a differential diagnosis of cases presenting a tumor of the lip. In this case the condition resembled a giant chancre and, therefore, the lesion was subjected to dark field examination for spirochetes. Clinically, it also resembled a phlegmon because of the rapidity of the growth. The diagnosis was finally established by microscopic examination of the sectioned tumor.

REPORT OF CASE

History.—W. H., a man, aged 65, lumberman, American, presented himself at the University Hospital, on the advice of his physician, because of a swelling of the upper left portion of the lip. Two weeks before, he had noticed a lump the size of a hazelnut just below the left nostril. This lump seemed to be within the tissues of the lip; he also noted the fact that the entire upper left half of the lip was thicker than the right half. There was positively no pain, nor any subjective symptoms, except an occasional pricking sensation. He immediately consulted a physician, who made no diagnosis, but advised hot applications, which he applied for three days, with no benefit. He then consulted another physician, who advised cold applications, which were tried for twelve days. The "lump" during this time increased to the size of a pigeon's egg. A film of disagreeable coating formed over the internal surface, but it continued to be painless. Wiping off this membrane caused a slight oozing of bloody serum. The mucous membrane was denuded, but there was no deep ulceration. He did not lose weight or feel different in any way than he did previous to noticing the growth. He stated that his wife had died five years before. The cause of her death he did not know. He had one daughter, aged 42, living and well; no other children. He had had no venereal exposure for forty years. He had always worked at the lumbering industry.

Physical Examination.—The patient was well nourished and well developed. He showed no distress. Examination was negative, except for the condition of the lip. The left half of the upper lip was swollen to three times its normal size. There was present in this portion of the lip on the mucosal surface a hard, red, circumscribed mass slightly depressed at its center and elevated at its edges. The mucosa was denuded over this area about the size of a half dollar.

* Read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Markly, A. J.: Primary Sarcoma of the Lower Lip, J. A. M. A. **61**: 334 (Aug. 2) 1913.

It was not very tender to manipulation. There was no bleeding. The mass was covered with a thin film of adherent, yellowish exudate which was easily removed and left a raw, oozing surface. The entire left half of the upper lip was indurated and swollen. The swelling extended to 1.5 cm. from the vermilion border. There were no palpable, enlarged submental or submaxillary glands. Feb. 17, 1920, dark field examination by Dr. Michelson, and February 18, dark field examination by Dr. Butler were negative.

February 23, the lesion, resembling a phlegmon more than anything else, led to the tumor being treated as an infection with crucial incision and curettage of the infiltrated area. Scrapings were sent to the laboratory. Hot boric packs were applied by Dr. H. P. Ritchie.

Fig. 1.—Sarcoma of upper lip.

Fig. 2.—Extent of growth inside lip.

Operations and Laboratory Reports.—A small piece of the lip was examined. The tissue was soft and whitish, almost translucent. Microscopic section showed a mass of very cellular tissue. The nuclei were so numerous that they appeared almost to be overlapping. They were round and vesicular, with pale staining chromatin, and a large percentage of them were in the stages of mitosis. This embryonic type of cells with such numerous mitoses indicated marked malignancy and an exceedingly rapid growth. A diagnosis of sarcoma of the round-cell type was made by Dr. M. Warwick.

February 24, the entire lip was excised. The piece removed measured 7.5 by 3 cm. Two incisions at right angles to each other had been made, thus laying the entire growth open. The tumor mass was soft and reddish-white. On the under surface there was ulceration and dark discoloration, with a very fetid odor of necrosis, suggesting gangrene. This mass was divided in the center by the skin and mucous membrane junction; in other words, it extended up under the skin of the face. The microscopic appearance was the same as described above. The diagnosis was round-cell sarcoma.

Further Observation.—Following this operation, the patient received a thorough roentgen treatment, with Coolidge tube, over the face and neck. This did not prevent the rapid metastasis into the neighboring glands and internal organs. The patient declined rapidly and became jaundiced; vomiting set in, and he died, April 18. Dr. Michelson attended the postmortem examination.

Summary of Necropsy.—Necropsy, which is omitted for want of space, revealed metastases in the abdominal, mesenteric, and submaxillary lymph nodes, kidneys, suprarenals and intestinal wall.

COMMENT

Because of the rarity of sarcoma of the lip, a diagnosis on such a tumor of the lip must necessarily be made by exclusion.

In considering chancre of the lip, this case greatly resembled a photograph of chancre of the lip shown in Schamberg's textbook. Negative dark field examinations and absence of adenopathy excluded this condition.

Phlegmon should be excluded because of the lack of inflammatory areola, local heat, tenderness and pain.

Epithelioma must be mentioned. In this case, there was no deep ulceration, no hard edge, and none of the characteristics which suggest that diagnosis. The absence of history of injury ruled out infected hematoma, although it did resemble that condition. In favor of a diagnosis of sarcoma, we had a hard, localized, rapidly growing, painless tumor which was positively proved by microscopic examination.

625 Syndicate Building.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SOILAND, SUTTON, AND SWEITZER AND MICHELSON

DR. ERNEST DWIGHT CHIPMAN, San Francisco: What, if any, advantages result in the treatment of purely cutaneous conditions by filtering the roentgen rays? I have found the results quicker and generally more satisfactory without the interposition of any aluminum. It would be interesting to know whether any one has found the filter of advantage in the deeper skin affections.

DR. EVERETT S. LAIN, Oklahoma City: Two attempts to treat hypertrichosis with the roentgen ray were failures. As regards epitheliomas of the face, I have long since been convinced that the radiotherapist who studies his technic carefully and applies the more accurate methods of today can accomplish a higher percentage of cures and do it with far better cosmetic and other essential results than by surgery or any other method of treatment. I am coming to believe that even in epitheliomas of the lower lip, where surgery has so long declared an advantage, radiotherapy is even here the method of first choice in all clases of cases. I realize that this statement sounds rather radical to a surgeon and perhaps to some dermatologists. I have tried to make a comparative study of cures as reported by the larger surgical clinics with

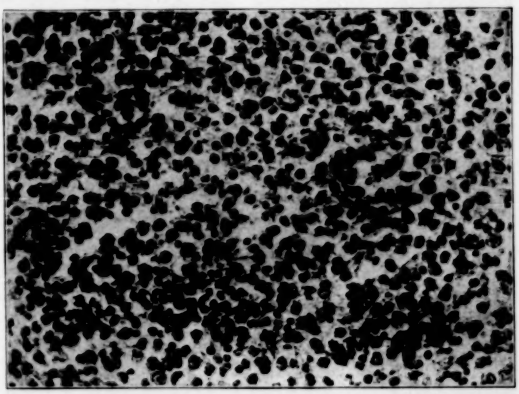


Fig. 3.—Section, round-cell sarcoma.

those of radiotherapists. I am convinced that radiotherapy gives a higher percentage of cures, and also gives the patient a much better appearance and mobility of the lip. I am also convinced that in malignant growths of the mouth the use of radium, properly applied by treating all of the communicating and adjacent lymph glands, will accomplish a higher percentage of cures and with far more comfort to the patient than surgery. I was interested in Dr. Sutton's paper on epitheliomas of the nose. I, too, have found this a very common location, perhaps second only to epitheliomas of the lower lip. I have followed methods of treatment similar to those used by Dr. Sutton, except that by placing a finger in the nose, I first try to determine whether the cartilage is involved. If it is, I give a heavily screened dose of roentgen rays; then with caustic soda and a curet I try to remove all dead cartilaginous material and follow with radiotherapy.

DR. C. J. BROEMAN, Cincinnati: I am sure that after more dermatologists use radium in sufficient quantity we shall begin to get better results and that we cannot do without radium in practicing dermatology on an extensive scale. A great number of dermatoses can be treated by other methods, but after all, radium, in some cases at least, is the method of choice. In regard to epithelioma of the nose and different parts of the face, instead of using an unscreened applicator I usually use a 10 mg. plaque, screened with 0.3 mg. of brass, then rubber tissue, and leave it in place for four hours, either at one sitting or for two hours on successive days. Following this I give an unscreened dose of radium for two hours. The last two hours of radium, in my opinion, act the same as the caustic or curet. If you use only the unscreened radium you do not penetrate the growth so well and you get more scarring. I noticed this extensive and marked scarring in a case in which they had used emanation needles with no screen, for a superficial epithelioma. I think this is an important point, especially when treating a woman who is particular about her appearance. Epithelioma of the lip is a serious and often fatal condition, especially if the disease is not treated properly in the beginning. It should not be treated with radium unless we have a sufficient quantity, at least 50 mg. An important point that was not mentioned in the paper of Dr. Soiland is the location, whether the epithelioma is on the vermilion border or on the true mucous membrane or at the junction of the two. If it is located on either of the last two mentioned localities, it is a more malignant form of growth, which is prone to metastasize, and we must treat with a massive dose in the beginning. These cases do not respond well to roentgenotherapy. Irradiation of the glands of the neck before we treat the lip may be of assistance; but, unless we treat the lip within a short time, the growth may spread and not respond to radium. In regard to using radium after the roentgen rays have been used: One of my patients, with epithelioma of the lower lip, had extensive roentgen-ray treatment by one of our best roentgenologists. The lesion failed to respond to the rays, and the case was referred to me for radium treatment. Radium also had no effect whatever on the progress of the disease. I had another case of extensive epithelioma of the abdominal wall that had thorough roentgenotherapy without any improvement. Two years later I treated this patient with deep radium exposures with a very favorable result. This, I think, illustrates quite clearly that radium is of doubtful value in a case recently treated with the roentgen ray.

DR. ALBERT SOILAND, Los Angeles: Concerning filters, I do not believe that the average medical man appreciates that the effect of irradiation, irrespective of the source, varies only in proportion to its wave length. If you apply rays of the same wave length or frequency to any part of the body, you will get the same result; so that when you say that radium will do this and roentgen rays will do that, that is not using the proper term. They will both do the same thing if they are used in the same amount. The important point is that you can apply the radium directly into the growth by embedding applicators and perhaps get 100 per cent. efficiency. In applying irradiation from the outside, you get only a small part, perhaps only 20 or 25 per cent. efficiency. The filtering of the ray is to avoid as much as possible the secondary disturbances on the skin. We do not need so much on the skin, but we want to go below, so we filter off those rays and get as much underneath as possible. We believe that this is the proper thing to do, and it is in line with the conclusions reached by practically all authorities on this subject.

DR. RICHARD L. SUTTON, Kansas City, Mo.: With regard to split doses of radium (short exposures, repeated at intervals of a few hours or a day or so), I was much surprised at the opinions of Drs. Pusey, Morrow and Montgomery during the discussion of Dr. Morrow's paper on the treatment of cancer a few days ago. The fact that all three gentlemen prefer to employ this agent in this way would indicate that it is the method of preference in many cases. I agree with Dr. Soiland. Patients do not come to us to "buy radium"; they come in search of intelligent treatment that will ultimately lead to a cure. To paraphrase Dr. Pusey, not only should one "screen his radium with brains," but the entire plan of treatment should be outlined by the careful exercise of that same organ.

DR. SAMUEL E. SWEITZER, Minneapolis: I want to emphasize two points in Dr. Sutton's paper: One is that in epithelioma of the nose, if the bone is involved, neither the roentgen rays nor radium will effect a cure, and these cases usually go on to the involvement of the cavities. Also, the fact that in epithelioma of the nose located in the lower portion of the nose, around the alae, the glands are quite deep there and I have had many more recurrences in that locality than on any other portion of the face. It is practically the only portion of the face where I have noted recurrences, and that is because the growth has progressed down into the glands. I now warn these patients that within a year or so they will probably have recurrences, and that they must come back for treatment. In our own case the only reason for reporting it was that it was an unusual case which I saw with a surgeon and that accounted for the surgical procedure I related. I would have treated it a little differently myself.

AN ANALYSIS OF GASTRO-ENTEROSTOMY AND ITS FAILURES*

C. A. ROEDER, M.D.
OMAHA

The monotonous dispute between the surgeon and the internist relative to the treatment of chronic ulcer without obstruction, exemplified by the former's empiric advocacy of an operation for all ulcers and the latter's universal condemnation of such operations, has developed so great an attitude of offense and defense concerning the respective specialties that the patient still remains the party of the third part. The surgeon's lack of confidence in nonsurgical treatment is due to the fact that he knows that a great many ulcers reported as having been successfully treated were not ulcers, but were extragastric lesions producing a symptomatology of marked similarity. His adverse attitude toward medical treatment is intensified by his knowledge of the fact that the symptomatology of chronic ulcer is very frequently intermittent, and that consequently there is a possibility of such an intermission being regarded as a cure. The internist's lack of confidence in surgery is due to the fact that about 25 per cent. of gastro-enterostomies are failures, and failures of such magnitude that the cure is worse than the disease. The internist's opposition is further increased by the fact that the surgeon has never been able to offer an anatomic and physiologic explanation of successful

* From the Department of Surgery, Nebraska University School of Medicine.
* Read before the alumni meeting of the resident and ex-resident surgeons of the Mayo Clinic, held at Rochester, Minn., May 18 and 19, 1921.

and unsuccessful operations, thereby causing greater significance and importance to be attached to the 25 per cent. of failures in gastro-enterostomy than to the 75 per cent. of successes, so that the former arouse a disproportionate amount of comment, whereas but little is heard about the latter.

This uncompromising, as well as unprogressive, attitude on both sides might be greatly alleviated if the internist combined with his philosophic physiology a study of the living abdomen; which additional knowledge can be obtained only by his constant presence at the operating table, where, by the way, he is always welcome. It is, however, no less essential that the surgeon modify his egotistic complacence and obtain a better knowledge of the ever varying anatomy in order that he may acquire a better physiologic conception of the successful and unsuccessful results, and, furthermore, that he may determine, as far as possible beforehand, in what type of patient there will almost invariably be an unsuccessful result. He will then be able to state to the internist, who rightly demands it, what cases contraindicate a gastro-enterostomy; or, if the operation is essential, he will be able so to vary his technic that his results are greatly improved. If the surgeon can eliminate his 25 per cent. of failures, the *bête noire* of gastric surgery, and if the internist can improve his diagnostic acumen relative to chronic ulcer, both increasing their knowledge of the pathology of an ulcer, of the significance of its regional occurrence, and of the meaning of its active, inactive and so-called cured state, they would display such cooperation that the patient would actually become that which he has always considered himself, the party of the first part.

The surgeon realizes that a gastro-enterostomy attempts only a new physiologic rôle in a most unphysiologic manner; but the remarkable degree of success for ulcers beyond a certain size indicates that the procedure possesses sufficient merit to command a further study of its failures in order to increase the percentage of its success, thereby preserving it as one of the most satisfactory procedures, if not the most satisfactory one, for the chronic ulcer which cannot be treated by excision only.

An analysis of gastro-enterostomy and its failures requires a study of its normal and abnormal anatomy and physiology. The anatomy, of primary importance, has received relatively scant attention, too much reliance having been placed on the roentgen ray and stomach tube, which are methods that give us important information of merely a very few of the troublesome anastomoses. The anatomy presents itself as the primary etiologic factor in the frequency of ulcers occurring in this area; it prohibits, with all ulcers beyond a certain size, a segmental resection with a restitution to normal continuity, allowing only some form of a gastro-enterostomy, with or without a resection of the stomach; and, therefore, it seems the most important factor in successful and unsuccessful operations. I am offering this paper mostly on an anatomic study, fully realizing, nevertheless, that our ultimate results are based on physiology.

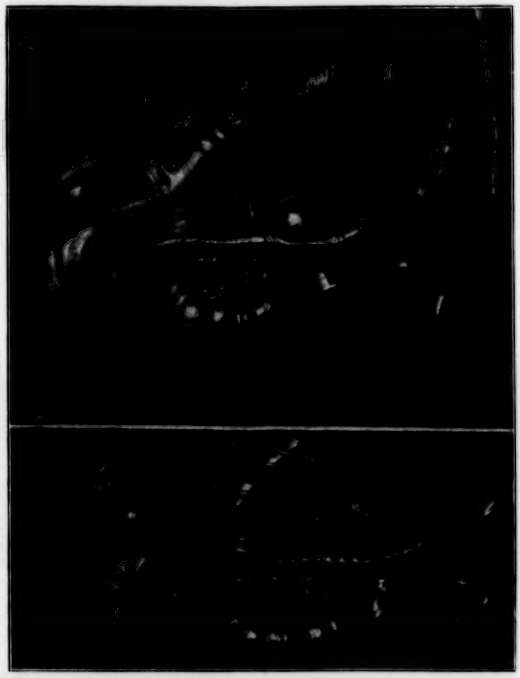


Fig. 1.—Transperitoneal view of the two types of duodenum, resembling the letters U and C. The relation of the stomach and the base of the transverse mesocolon to the flexure should be noted; also the position of the ligament of Treitz (dotted line), which is never seen at the operation unless the peritoneum is reflected.

ANATOMY AND PHYSIOLOGY OF THE STOMACH AND DUODENUM

The marked excursion of the stomach depends on its physiologic demands and the position of the person. When the stomach is empty, it assumes a more nearly transverse position; when it is filled and the person is standing, it assumes a more nearly vertical position, because of the descent of the pyloric region. Although a gastro-enterostomy is performed in the former position, it is expected to function in the latter. From a motile and secretory standpoint, the stomach surpasses any other portion of the intestine, and its lesser curvature might be termed the central nervous system of the organ, having contracted to about one-fourth the length of the greater, leaving it with a relatively greater function from a motile standpoint. This is

also exemplified by the "canalis gastricus" (magenstrasse [1]), formed by the contraction of the lesser curvature in such a way that it controls the direction of food as it enters the stomach. The motile function of the stomach, which requires coordination between the lesser and greater curvatures, represents a proper balance between retention and propulsion of its contents, equaling in time the same function in the entire small intestine, both segments retaining food for from four to six hours.

The duodenum as a whole enjoys very little excursion, being more or less fixed to the posterior abdominal wall, particularly at its proximal and distal portions. From my own dissections in the cadaver and observations in the patient, I have noticed that it falls generally into two types, resembling the letters U and C, with occasional modifications. In the former, the jejunal flexure generally terminates above the transverse mesocolon; in the latter, generally on a line with the mesocolon's attachment to the posterior abdominal wall (Fig. 1). The flexure is formed by fixation and suspension through the ligament of Treitz, which is a prolongation downward of fascial and muscular tissue from the right crus of the diaphragm. This ligament, which is completely retroperitoneal, is never seen during an operation unless dissected free, and is frequently mistaken for the mesojejunal fold, which suspends the jejunum to the transverse mesocolon. It determines the angulation and the height of the duodenojejunal flexure, which must be given exceedingly careful consideration before the performance of a gastro-enterostomy, and afterward also, when accompanied by troublesome symptoms.

Fig. 2.—Schematic representations of the duodenum and its retroperitoneal relationship: *A* represents the U type of duodenum with the ligament of Treitz elevating the duodenojejunal flexure above the transverse mesocolon; *B* represents the C type of duodenum with the ligament of Treitz of greater length allowing the flexure to lie just below the transverse mesocolon. Compare the angulation of the two flexures.

The function of the duodenum represents only a rôle of hypermotility, of such speed that it may be likened to a rapid transit duct. An obstruction of the stomach as compared with one of the duodenum is of far less significance, since one of the stomach's normal functions is retention. As the duodenum possesses a hypermotility unequaled in speed by any other portion of the gastro-intestinal tract, it withstands not the slightest degree of obstruction. We have these examples demonstrated clinically.

1. Waldeyer, W.: Die Magenstrasse, Sitzungsb. d. k. preuss. Akad. d. Wissensch. Gesammtsetz. **39**: 595-606 (June 4) 1908.

COMPARATIVE PHYSIOLOGY OF GASTRIC AND DUODENAL ULCER

We have only two types of obstruction in the gastro-intestinal tract: spastic and organic.[2] The former is represented by duodenal and gastric ulcer without scar tissue obstruction, the deformed cap and incisura resulting from a spasm in the segment containing the ulcer (defect). Coordination of peristalsis is interrupted, which in the duodenum is of far less significance than in the stomach, as has been proved clinically and by a study of the physiology. These spasms, deformed cap and incisura, are Nature's waves of compensation, owing to the ulcer's having destroyed a portion of muscular tissue in the same segment. With both types of obstruction in any portion of the gastro-intestinal tract, we have, as a result, hypersecretions and hyperperistalsis in the segments above, which also are Nature's method of overcoming delay. This is exemplified by gastric hypersecretions and hypermotility with ulcers of the duodenum and stomach.

The variations in the symptomatology and in the postoperative success which may result after the same procedure indicate that, in addition to their different locations, gastric and duodenal ulcers are very different conditions, which suggest different methods of surgical treatment. The two, however, have one thing in common in that their symptomatology is produced primarily through an interference in motility with the stomach. In duodenal ulcer, the obstructive spasm is outside the stomach, leaving the gastric motility, although hyperactive, in perfect coordination. In gastric ulcer, particularly along the lesser curvature or thereabout, the obstructive spasm is inside the stomach, producing an incoordination of gastric motility. This incoordination with gastric ulcer, as demonstrated by the inactive niche and hyperactive incisura, most probably accounts for the greater distress, greater delay and small postoperative success, as compared with the same factors of duodenal ulcer. With gastric ulcer, the stomach bears the pathology as well as the symptomatology; but with duodenal ulcer, it bears only the symptomatology.

These conclusions are drawn from the fact that the principal point in the diagnosis of a lesion in any por-

2. Ileus due to sepsis, atrophy of muscular tissue and lesions in the central nervous system are not true types of obstruction.

tion of the gastro-intestinal tract depends primarily on an interference with motility. This fact is further corroborated by the elusiveness of ulcers in the cardiac pouch, owing to the fact that this area is the most inactive portion of the gastro-intestinal tract; apparently it is beyond the influence of the lesser curvature.

ANATOMY OF A GASTRO-ENTEROSTOMY

If the anatomy of a gastro-enterostomy remained as we left it following the operation, and if the duodenum and the beginning jejunum were on a free mesentery, as in the dog, resembling the textbook illustrations of the no loop operation, I dare say that our results would meet with greater success. In man, however, the terminal duodenum and the beginning jejunum cannot approach the anastomosis directly because of: (1) the superior mesenteric vessels' passing anteriorly; (2) the fixation with varying angulations of the flexure by the ligament of Treitz, and (3) the frequent restriction of the beginning jejunum by the base of the mesocolon. We must also not fail to take into consideration the bend of the duodenum over the vertebral column.

The more or less frequent dilatation of the entire duodenum without the presence of a gastro-enterostomy indicates that this segment of the small intestine is so placed that its anatomy is the etiologic factor and requires a careful study before applying the anastomosis. Particularly should be noted the presence of the U-shaped duodenum where the flexure is found above the transverse mesocolon, requiring a sharp turn downward (caudad) in order to have the jejunum enter the greater cavity. This type of duodenum, more frequently in males, has two potential points of angulation which the C type has not: (1) the flexure, and (2) the opening through the mesocolon. In addition, this higher lying flexure is so placed that the stomach after food intake may compress it sufficiently against the vertebral column or posterior wall to bring about the varying degrees of duodenal dilatation, with or without symptoms. These areas of angulation and compression will generally be increased after a gastro-enterostomy.

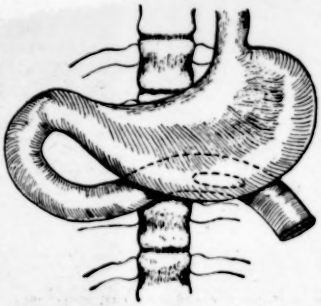


Fig. 3.—Posterior no loop gastro-enterostomy, which can be performed only in an animal having the duodenum on a free mesentery, which does not exist in man.

It seems almost needless to state that if the U type duodenum is found, one should not expect the same degree of success as when the flexure ends below or on a level with the transverse mesocolon. In my experience, it has so happened that nearly all dilated duodenums have been found, with or without the presence of a gastro-enterostomy, only when the flexure lay above the mesocolon. If dilatation is found previous to the performance of the operation, it is very likely to be accentuated afterward, and should be relieved as much as possible, which circumstance can only add success to the operation. It is these angulations and restrictions, acting as potential points of obstruction, which may prevent a greater degree of success following this anastomosis, as they are so readily activated by traction when the stomach is attached to the jejunum. I am not laying so much stress on the possible angulations of the jejunum at both ends of the anastomosis with a relatively long loop, as this condition has been described and emphasized frequently elsewhere. These angulations have to a large extent, but not entirely, disappeared with the no loop technic.

The anastomosis cannot remain at the lowest point on an empty or full stomach because even after a careful attachment of the transverse mesocolon to the stomach, the posterior wall retracts upward and backward after the operation and the distal half hangs below it after ingestion of food. Dilated stomachs reduce their lumen after the anastomosis, which fact further changes the anatomy. The same fractional drainage of the gastric secretions might be obtained by attaching the new opening in any portion of the lower two thirds of the stomach, provided the duodenojejunal loop was not obstructed. The principal point in performing a gastro-enterostomy is the free and complete drainage of all duodenal contents, keeping in mind that if such drainage is accomplished, the stomach is automatically taken care of. This reduces the stomach to a point of secondary importance in technic, relative to drainage, since the slightest failure of this rapid and complete drainage of the duodenum brings on the symptoms of troublesome gastro-enterostomies. The operation of W. J. Mayo, the most deservedly popular today, accomplishes its good results mainly through its free drainage of the duodenum. The majority of surgeons now attach the edge of the opening through the transverse mesocolon to the stomach, several inches above the anastomosis,[3] which method they feel not only prevents a hernia into the lesser peritoneal cavity, but also tends to form a funnel-shaped depression in the stomach to facilitate drainage.

I think this attachment of the mesocolon, which cannot be done too thoroughly and carefully, serves another and even greater purpose by immobilizing this portion of the stomach sufficiently to prevent angulations and traction on the duodenojejunal loop, thus adding greatly to the success of the operation. It is a point in technic demanding the greatest emphasis, as I feel it is one too generally overlooked, and next to the free drainage of the duodenum, is the most important procedure in the operation.

PHYSIOLOGY OF A GASTRO-ENTEROSTOMY

We still have with us the predominating thought that a gastro-enterostomy produces healing of an ulcer by short-circuiting secretions and food, and by introducing duodenal contents into the stomach as antacids. Duodenal and gastric ulcers occur in a mucosa which has been born and raised in an acid environment, and one would expect a normal environment to be the best therapeutic agent. Moderate acidity, therefore, might be more desirable than alkalinity, if the reaction of stomach contents has any direct therapeutic influence, which I am quite sure it has not, in either a normal

3. The attachment of the mesocolon to the stomach well above the anastomosis, as far as I was able to determine, was first advocated by the Mayos. Priority for the attachment of the mesocolon to the anastomosis, I could not determine.

acid or an alkaline state. A gastro-enterostomy generally reduces the hyperacidity to normal or thereabout; and when it is followed by a complete absence of acids, our results are not so successful. The ulcer segment first becomes spastic, thereby producing hypersecretions above to overcome delay; the hypersecretions in turn aggravate the spasm, thus producing a vicious circle, which a gastro-enterostomy breaks. This vicious circle produces a marked spasm in the ulcer segment resulting in a local anemia and edema, a condition which, in the presence of surrounding scar tissue, prevents healing or inactivation.

It seems, therefore, that the acidity has only an indirect influence, but an important one. The ulcer, however, does not heal, the reason being the same as that which caused the ulcer, namely, a lack of blood supply, which can return only through a relaxation of this segmental spasm. Actual healing in the sense of a normal union of each coat, with the disappearance of all scar tissue, must be unusual following a gastro-enterostomy or any type of medical treatment. We find these defects, although inactivated, later during exploration for other pathologic conditions. By an inactivated ulcer, I mean one with very little scar tissue and edema surrounding it, and with the symptomatology practically, if not entirely, absent.

Relative to the short-circuiting of food, we know that the greater portion soon after the operation passes through the natural channels, pylorus and duodenum. This must be expected, as the stomach's primitive functions are a retention of food by the pylorus and a propulsion of its contents through it. This is greatly desired with or without a gastro-enterostomy in order to bring about the intragastric, as well as the more important intestinal, digestion below. The success of a gastro-enterostomy for ulcer, when scar tissue or edema is not producing obstruction, is indicated by the passage of stomach contents through the pylorus and duodenum, as this passage signifies that the spasm in the ulcer segment has relaxed and that the stomach has resumed its normal motility; the operation should in no way be considered a short circuit for food.

The so-called healing of a chronic ulcer is brought about generally by substituting less scar tissue, without edema. This substitution results in an area which will return to a more active condition (ulceration) on the slightest irritation or infection. Therefore, in order to keep this area in its quiescent, but rarely normal, state, a gastro-enterostomy must constantly perform its new rôle: a vent for periodic acidity, which demands a proper coordination in gastric musculature, as important with a gastro-enterostomy as without it. The successful results following a Billroth or Polya operation indicate that whenever incoordination cannot be overcome by a gastro-enterostomy, which is true in most instances with lesser curvature ulcers, it is better to resect the most active portion of the stomach, converting it into an inactive pouch.

In duodenal ulcer, the descent of the distal portion of the stomach is lessened, owing to the decreased elasticity of the duodenum resulting from inflammatory tissue. This holds the pylorus higher, resulting in less traction on the proximal loop, which may account partly for the greater degree of success with duodenal ulcer. The decreased excursion downward of the prepylorus with duodenal ulcer is so characteristic that I offer it as a diagnostic probability.

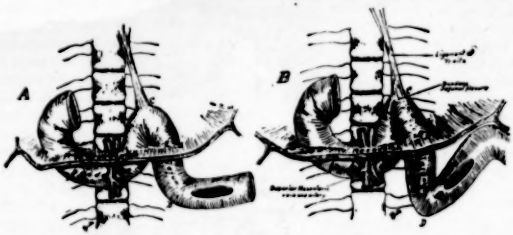


Fig. 4.—*A*, arrangement of the jejunal loop during the performance of a gastro-enterostomy with the U type of duodenum. Potential points of angulation are at *C*, *D* and *E*. The high flexure *C* is also subjected to pressure by a filled stomach. *B*, arrangement of the jejunal loop with the U type of duodenum after the stomach is filled, the anastomosis slanting downward to the right, acutely angulating the flexure at *C* and the jejunum at *D*; pressure from the stomach further angulates the flexure, the jejunum is also angulated as it passes through the base of the mesocolon at *E* by excursions of the stomach in all directions but downward. These angulations are prevented to a certain extent by attaching the mesocolon to the stomach.

COMPLICATIONS FOLLOWING A GASTRO-ENTEROSTOMY

Following their operations, from about 5 to 10 per cent. of those who have undergone a gastro-enterostomy for duodenal ulcer, and from about 20 to 30 per cent. of those who have had a similar operation for gastric ulcer well above the pylorus seek further relief, particularly avoiding the surgeon. This state of affairs, which has naturally led many internists to assume that the operation has led to a far greater degree of failure than is actually the case, is their principal argument in favor of medical treatment for all chronic ulcers.

Since the adoption of the technic of the Mayos and Moynihan, the operation has met with far greater success than formerly, and these procedures seem almost beyond further improvement. However, there still occur occasionally a few complications which I wish to present here and which I shall attempt to analyze.

1. *Attacks of Chronic Obstruction of the Duodenum.*—Not infrequently these attacks follow a proper technic, coming on as late as ten years afterward, but generally occurring within a year after the operation. Such an attack is the most frequent complication and is conspicuous for the reason that very little has been written about it, as the acute attacks which come immediately after the operation receive more consideration. These chronic attacks, accentuated by small amounts of food, are characterized by spells of indefinite upper abdominal distress, with or without vomiting, and often with a persistence of the previous ulcer symptoms. The vomitus is generally of duodenal contents, bile, etc., only occasionally of food. The attacks do not become dangerously acute; but frequently they cause marked debility because of the fact that they are due to a partial obstruction of the duodenum. With nearly all gastro-enterostomies which are regarded as successful, this syndrome can be brought on by taking large amounts of food, which produce an obstruction of the proximal loop, particularly at the flexure, and possibly a dilatation of the

anastomosis to the extent that the openings from the jejunum into the anastomosis are "stretched tight."

The duodenal contents are obstructed at one of three places: (1) at the proximal, rarely at the distal, end of the anastomosis; (2) at the base of the mesocolon where the jejunum comes through into the general cavity with the U type of duodenum; (3) with the same type of duodenum at the duodenojejunal flexure formed by the ligament of Treitz. The roentgen ray will generally demonstrate a barium meal flowing freely into the efferent jejunum, but offering very little, if any, information relative to any possible point of obstruction. During an attack, barium rarely enters the duodenum, probably because of a reverse peristalsis. Between the attacks, the roentgen ray demonstrates barium flowing through the anastomosis and also through the pylorus. In other words, a negative roentgen-ray report during or between the attacks is suggestively diagnostic.

A simpler and more accurate method of diagnosis is to have the patient swallow a pint of milk during the attacks, which will be followed in a few minutes by a vomitus of a pint of bile.[4] The contrast, which is most striking, indicates that the milk flowed freely out of the stomach into the distal jejunum, while the contents of the duodenum, being obstructed at some point up to the anastomosis, were forced back by reverse peristalsis which extended through the stomach.

Not only is the roentgen-ray examination negative; but during the exploration, particularly if it is carried on between attacks, nothing of any diagnostic value can be determined. One might state that two such negative pictures are diagnostic, and, to say the least, most suggestive. During the attacks, the duodenum may be found dilated and extended to one of three points previously mentioned. One patient, with a flexure above the mesocolon and sharply kinked, I relieved completely by dividing the ligament of Treitz. With finger dissection I liberated the intestine for an inch or so on each side.

If one fails completely to find any signs of diagnostic importance, the condition of the old ulcer site should be determined. If a duodenal ulcer has become so small and inactive, it should be resected [5] and the anastomosis removed. If the ulcer has perfectly healed, there is no further use for the gastro-enterostomy; such a condition I have found particularly true with previously perforating duodenal ulcers. If, however, the duodenum had been previously destroyed beyond hope of repair, or if the original lesion was a gastric ulcer, remaining more or less active with no active or potential point of obstruction determinable in either loop, a resection of the lower third of the stomach is indicated, and a Polya anastomosis substituted.

These attacks of chronic obstruction of the duodenum are very difficult to avoid in a certain small percentage of cases, even with the most acceptable technic, because of a dissimilarity of anatomy in the proximal loop from the anastomosis up to the pylorus, particularly with the U type of duodenum. With the U type of duodenum a certain percentage of these indefinite attacks of upper abdominal distress, with or without vomiting, may be due to the fact that a filled stomach compresses the duodenum against the vertebrae, relief coming as the stomach empties, or, as so frequently noted by patients themselves, by lying on the left side. When the opening through the transverse mesocolon is too near its attachment to the posterior abdominal wall, it may prevent the stomach from moving toward the anterior abdominal wall after taking food, thereby holding it fast against the transverse and ascending duodenum, a theoretical point worth considering.

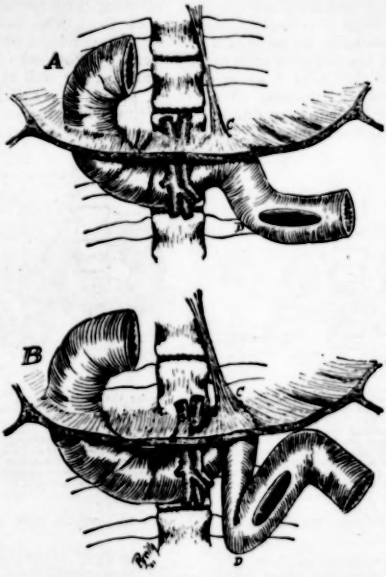


Fig. 5.—*A*, arrangement of the jejunal loop during the performance of a gastro-enterostomy with the C type of duodenum; the low lying flexure is not so acutely angulated as in the U type; *B*, arrangement of the jejunal loop after the stomach is filled, resulting in an acute angulation in the jejunum at *D* and very little if any at the flexure *C*, owing to its position below the mesocolon. Note that the jejunum is in no way restricted by the base of the mesocolon. The attachment of the mesocolon to the stomach prevents this angulation to a great extent.

2. *Attacks of Acute Obstruction of the Duodenum.*—These attacks, persisting after lavage, have by no means disappeared entirely with a proper technic, and their occasional occurrence is so acute and serious that the complication is still one to be reckoned with. It is an obstruction at some point in the duodenojejunum up to and including the small intestine just as it leaves the anastomosis. A previously dilated stomach may contract its lumen more than is anticipated, and the posterior wall which had been pulled downward and forward in order to place it in the clamp may retract to a marked extent upward and backward, both producing angulation at one or both ends of the anastomosis, and also with the U type of duodenum where the jejunum is covered by the base of the transverse mesocolon. These attacks come immediately after the operation, before food can be given to cause a descent and traction from the stomach on the proximal loop; therefore, we would not expect an obstruction at the duodenojejunal flexure even in the high lying type (Fig. 5). If lavage does not relieve, an early exploration is indicated, during

4. This diagnostic point was presented to me by Dr. Morris Nielsen, Blair, Neb., who had had this complication after a gastro-enterostomy.
5. Roeder, C. A.: Surgical Considerations of Gastric and Duodenal Ulcers, J. A. M. A. 76: 1150 (April 25) 1920.

which the most frequent abnormality found is the retraction of the stomach upward, pulling as well as kinking the proximal and distal jejunal segments through the opening in the mesocolon.

A replacement of the edge of the transverse mesocolon higher up on the stomach is indicated, allowing a much freer approach and departure of the jejunum at the anastomosis. In the type of obstruction at the jejunal opening through the base of the transverse mesocolon, the diameter of this passageway should be enlarged,[6] and with finger dissection the intestine liberated.

The characteristic feature of these cases of acute and chronic vomiting following a gastro-enterostomy is a more or less fixed duodenojejunum (proximal loop) at one or more points, which should always be liberated as much as possible if the anastomosis is not to be removed. Entero-anastomosis is not advisable as there is not a large enough loop with the standard technic.

3. *Hemorrhage of Varying Degrees.*—This is a complication demanding an improvement in the technic of suturing. Bleeding from the suture line can absolutely be prevented by the use of a plain, running, close-biting suture, which has proved very satisfactory to me for a number of years. Bleeding from the previous ulcer rarely, if ever, occurs if the ulcer has not bled before. With a history of bleeding, Balfour's cautery puncture or an ulcer resection is indicated, with very careful layer closure. Such hemorrhages s em almost inexcusable since there are such simple methods of preventing them.

4. *Gastrojejunal Ulcer.*—The alleviation of this complication is generally unparalleled in surgical procedures. It is found in the region of previous suturing and where clamps have been used. Since this complication occurs only following the operation, it is a matter which suggests further improvement of our technic. I shall not consider it further in this paper, as I am reporting the results of some experimental work relative to it in another communication.

834 Brandeis Theater Building.

AN OPERATION FOR VALGUS FEET

PERCY WILLIARD ROBERTS, M.D.
NEW YORK

For that type of valgus deformity of the foot commonly seen as a sequel of poliomyelitis, in which the tibialis anticus is powerless and the common extensor and peroneus muscles are active, with or without shortening of the Achilles tendon, I have, for the last year and a half, been using an operation yielding results so satisfactory that it seems worth recording.

The procedure may be described as the reinforcement of the tibialis anticus by the common extensor, thus reestablishing the muscle balance of the foot. The original attempt to correct a valgus deformity in this way was the result of the belief, since proved beyond doubt to be correct, that the tibialis anticus, though powerless, was not necessarily paralyzed. This muscle is supplied by the same nerve that stimulates the common extensor and the flexor longus hallucis, and while it is conceivable that the latter two muscles might regain their power while the cells in the cord which control the tibialis were damaged beyond repair, it did not seem likely that this would frequently occur. Judging by the fact that a few months after operation contractions of the tibialis can easily be demonstrated above the site of the implantation of the common extensor, it is logical to assume that this muscle is seldom completely paralyzed when the common extensor and the extensor hallucis are active.

The impotence of the tibialis in the type of cases under discussion may be explained on the theory that after an attack of poliomyelitis the muscles on the fibular side of the leg are first to recover and that the tension they exert is sufficient to stretch the tendon of the tibialis to a point at which the muscle can no longer function, and the atrophy of disuse follows as a natural phenomenon. At any rate, the muscle regains a certain amount of power when its proper mechanical relations are reestablished and its tendon does not stretch after reinforcement by the common extensor as it would be likely to do if a complete paralysis existed.

Roberts' operation for paralytic pes valgus. The tibialis anticus (*a*) is shortened by dividing the muscle at its junction with the tendon, overlapping the cut ends and suturing. The tendon of the extensor longus digitorum (*b*) is severed and woven into the tendon of the tibialis anticus; *c*, peroneus tertius. Drawing by Miss Emily Andrews.

OPERATIVE TECHNIC

The operation itself is relatively simple. Ultimate success depends on attention to certain details of preoperative observation and after-treatment:

As a preliminary step, it is necessary, after the patient is under the anesthetic, to ascertain whether the Achilles tendon is of normal length and whether the posterior part of the foot can be easily inverted. If resistance is encountered, the tendon should be lengthened, preferably by an open incision, and the fibrous tissues on the external aspect of the ankle joint divided subcutaneously until the normal lateral mobility between the astragalus and the os calcis occurs. An incision is then made on the fibular side of the leg, extending from the middle third down to the ankle joint, as far as, or through, the upper third of the annular ligament. Division of the fascia exposes the anterior muscles and tendons. The tendon of the common extensor is then divided at the lower angle of the wound, and the muscle freed from its fibular attachment for a considerable distance upward. The distal end of the tendon may be sutured to the peroneus tertius; but this is not absolutely necessary, as an attachment already exists which experience proves is sufficient. An assistant holds the foot in varus and slight dorsiflexion while the operator picks up the elongated tibialis anticus, severs it at the junction of the muscle fibers and the tendon, overlaps it until it becomes taut, and sutures it with chromic gut. With a small knife, two longitudinal slits are then made in the tendon, a little below the previous suture and about half an inch apart. The proximal end of the tendon of the common extensor is then passed through the upper slit from below upward, then through the lower slit from above downward, and sutured in this position with chromic gut. If the annular

6. Roeder, C. A.: Gastro-Enterostomy, J. A. M. A. **69**: 1320 (Oct. 20) 1917.

ligament has been partially divided, it is sutured. The muscle sheath is united only at the upper half of the incision. The subcutaneous fat is approximated with catgut throughout its entire length, thus forming a suitable covering over the spliced tendons. The skin is closed with catgut, and a plaster cast is applied from the toes to the knee, with the foot in varus and slight dorsiflexion.

The cast is allowed to remain on three weeks, when it is replaced by a removable posterior splint which still holds the foot in varus. This is taken off twice a day, and the foot is exercised in the motions of adduction and dorsiflexion. At the end of three weeks more, the splint is permanently removed, and the patient is allowed to walk in a shoe, the inner border of the sole of which has been raised one-fourth inch. This is worn six or eight weeks, during which time the patient should never be allowed to stand on the foot without a shoe on. At the end of three or four months, the reinforced muscle is usually strong enough to resume its ordinary duties and will in the average case continue to gain in power.

COMMENT

To tabulate the results of the forty cases in which this operation has thus far been performed would only be an expression of personal opinion; therefore, it is sufficient to say that of the very few cases which I classified as failures, there were none in which the parents did not think considerable improvement had been attained. Lack of success may usually be attributed to the selection of cases unsuited for the operation, to failure to lengthen a short heel cord, or divide contracted tissues on the outer side of the ankle joint, or to insufficient attention to after-treatment. At the Hospital for Ruptured and Crippled, where most of the patients have been operated on, six different surgeons have performed the operation with very little difference in the results.

576 Fifth Avenue.

Clinical Notes, Suggestions, and New Instruments

PUNCTURE WOUND OF THE LEFT VENTRICLE OF THE HEART

FRANK WARNER, M.D., COLUMBUS, OHIO

S. A., aged 24, an Italian, was brought to the Protestant Hospital, Feb. 6, 1919, with a stab wound in the left chest, in the fourth intercostal space, 2½ inches (63 mm.) to the left of the midsternal line. The wound was bleeding freely. The patient was placed under general ether anesthesia immediately and was taken to the operating room, where I made an incision over the site of the puncture, enlarging it. In order to give more room to follow the course of the puncture, I cut through the cartilage of the fourth rib and laid it back on the sternum. A puncture of both the pleura and pericardium was revealed. As the puncture in the pericardium was enlarged, it was seen to be filled with blood, the pressure on which was controlling in a measure the bleeding from the heart wound, a puncture of the left ventricle. The weapon which had been used was a pen knife. After some of the blood filling the pericardium had been cleared out, the wound in the heart was located by the blood issuing from it, and sutured with catgut. This controlled the hemorrhage. The pericardium and pleura were now sutured with the same material, and a rubber drain was inserted, down to the pericardium. As a slight infection followed, the drain was not removed for a few days. The patient made a complete recovery, but it was some weeks before the resulting anemia was overcome, and he had regained his strength.

Not more than thirty minutes elapsed between the time the young man was stabbed and the operation begun, and in twenty minutes more he was off the operating table. Morphin was then administered hypodermically, and hypodermoclysis, shock enema and glucose proctoclysis, 1,000 c.c., were employed.

10 West Goodale Street.

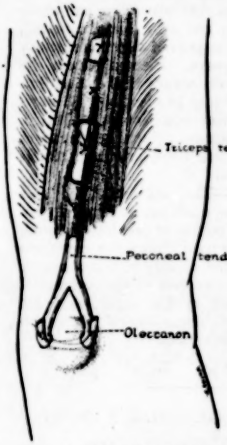
RESTORATION OF TRICEPS TENDON BY TRANSPLANTATION OF THE PERONEUS LONGUS*

MELVIN S. HENDERSON, M.D., ROCHESTER, MINN.

The two cases herewith reported illustrate the excellent functional result that has followed the transplantation of the peroneus longus tendon as a means of restoring the triceps tendon. The peroneus longus is excellent for this purpose; it is strong, and from 15 to 18 cm. of it may be readily obtained without disabling the foot, which is amply everted by the peroneus brevis and the peroneus tertius. In these cases both patients were unable to extend the forearm, and had to depend on gravity entirely for extension of the elbow.

REPORT OF CASES

CASE 1 (68807).—A young man, aged 17, was first examined in the Mayo Clinic in June, 1912; he came on account of an old ankylosis of the right elbow which had followed a compound fracture sustained two years before. There was some drainage at this time and he was asked to return later.



Free transplant of the peroneus longus tendon to restore triceps tendon, in Case 2.

In March, 1913, a large sequestrum 7.5 cm. long was removed from the medullary cavity of the lower end of the right humerus. The sinus healed, and in February, 1914, an arthroplasty was performed, sufficient flaps being procured from the surrounding tissue to cover the end of the humerus. An excellent result followed the arthroplasty. The patient was able to flex fully, but extension was limited to about a right angle, because the lower end of the triceps with its tendinous portion had sloughed, the patient being forced to depend entirely on gravity.

The patient was seen at intervals, and finally in January, 1921, was operated on for the lack of extension, and for an interstitial neuritis of the right ulnar nerve. The peroneus longus tendon was sewed to what could be found of the triceps tendon, and to the body of the triceps muscle. The distal end of the tendon was split and looped through the olecranon process through a drilled hole. The elbow was forced in the most extreme extension possible, an angle of 160 degrees, and the tendon was sewed in under considerable tension. Dr. A. W. Adson then transfeyred the ulnar nerve to the front of the elbow. The patient's recovery was uneventful, and he gradually regained the power to extend the arm until now the triceps is working very nicely.

CASE 2 (313465).—A man, aged 29, came for examination, April 23, 1920. He had sustained a fracture of the left olecranon process in February, 1920, which had remained ununited. He had no power of extension, chiefly because the proximal fragment of the olecranon had become adherent to the articular surfaces of the humerus.

* From the Section on Orthopedic Surgery, Mayo Clinic.

At operation, May 17, 1920, it was found necessary to remove part of the olecranon process, which was ankylosed to the humerus. A piece of the peroneus longus tendon was removed from the left leg and interlaced with the triceps muscle. The distal end of the tendon was split and tied into the upper end of the ulna by looping the tendon through a hole drilled through the ulna, and fastening it under tension with silk and chromic catgut. The elbow was placed in extension and the patient is now able to flex and forcibly extend it. The new tendon functions satisfactorily.

A QUANTITATIVE TEST FOR VAGOTONIA: PRELIMINARY REPORT *

MORRIS H. KAHN, M.D., NEW YORK

The usual method of performing ocular pressure in studying its effects on the heart is by digital compression. The amount of pressure that is exerted is variable, and the length of time before an effect takes place is uncertain. The results in different cases are not comparable because of these unstable factors.

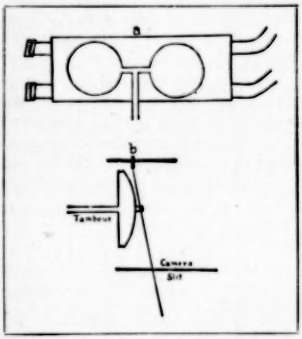


Fig. 1.—Apparatus for recording amount and duration of ocular pressure.

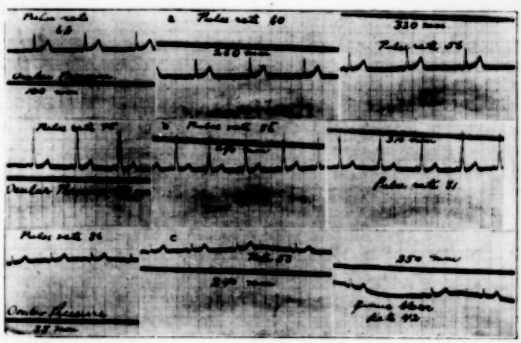


Fig. 2.—Tracings in (*a*) normal, (*b*) sympathicotonic and (*c*) vagotonic cases.

In order to standardize the method of ocular pressure, I have devised a simple apparatus by means of which the amount of pressure exerted and the length of time it has to be maintained will be recorded, until an effect on the heart through reflex vagus action is obtained. This instrument and the method described below serve as an accurate quantitative test for vagotonia.

THE INSTRUMENT, AND METHOD OF USE

The instrument consists of a pair of rubber eye-bags connected by a short rubber tubing (Fig. 1 *a*). This is enclosed in canvas, which will allow of free expansion, and is applied over the patient's eyes and fastened firmly around the head. It is also attached to a mercury manometer and to a tambour, which can be made to indicate the pressure graphically (Fig. 1 *b*). Air is introduced into the system, distending the eye parts and producing pressure on the eyeballs. The pulse is taken to note slowing or any change of rate or rhythm.

In my experiments, I photographed the tambour lever on the electrocardiographic film. The amount of ocular pressure is indicated by the position of the lever shadow on the cardiogram. The record of its effect on the heart is obtained simultaneously.

The accompanying tracings were obtained from three cases: one normal (Fig. 2 *a*), one sympathicotonic (Fig. 2 *b*), and one vagotonic (Fig. 2 *c*).

In the normal case, increase of pressure from 100 mm. of mercury to 260 and 320 gradually reduced the pulse rate from 62 to 60 and 56, respectively.

In the sympathicotonic case, the pulse at first accelerated then fell but little, with great ocular pressure. Thus, with pressure of 290 mm. of mercury, the rate rose from 75 to 86, and with 310 mm. of mercury, it was 81.

In the vagotonic case, increase of pressure caused the pulse rate to drop precipitately from 86 to 58, the latter under 240 mm. of ocular pressure. Under pressure of 250 mm., there occurred a period of sinus block, the sinus rate falling to 42 a minute.

Vagotonia as a clinical condition manifests itself among other symptoms by a prompt slowing of the heart (depression of the sinus node) when ocular pressure is exerted. It occurs as a constitutional condition in persons of vagotonic type. Sympathicotonia, or a relative diminution of vagus tone, on the contrary, shows a resistance to oculocardiac reflex effects. This is especially evident in cases of hyperthyroidism, neurocirculatory asthenia, and in sympathicotonia.

The instrument described herewith can be used at the bedside as a quantitative test for vagotonia.

140 West Sixty-Ninth Street.

* From the Department of Cardiovascular Diseases, Beth Israel Hospital.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

BARIUM SULPHATE (See Barium Sulphate for Roentgen-Ray Work, New and Nonofficial Remedies, 1921, p. 58).

Eastman Barium Sulphate for Roentgenology.—A brand of barium sulphate for Roentgen-Ray Work—N. N. R.

Manufactured by the Eastman Kodak Co., Rochester, N. Y. No U. S. patent or trademark.

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Actions and Uses.—See Potassium Mercuric Iodide (New and Nonofficial Remedies, 1921, p. 198).

Prepared by Davis and Geck, Inc., Brooklyn, N. Y. U. S. patent 1,276,119 (August 20, 1918; expires 1935). U. S. trademark 116,042.

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SATURDAY, NOVEMBER 12, 1921

IODIN AND SIMPLE GOITER

The great significance which small quantities of certain substances may have for the welfare and proper functioning of the organism is clearly exemplified in the case of the thyroid glands. It is today well known that one of the activities of these structures—and presumably their foremost function—is associated with the iodin-containing constituent. Although considerable time has elapsed since, in 1895, the German biochemist E. Baumann first detected the presence of small amounts of iodin in thyroid tissues, it was not until 1914 that, through the researches of E. C. Kendall at the Mayo Foundation, the final stage in the detection of the active complexes was reached in the discovery of thyroxin. According to Plummer,[1] a sustained elevation of basal metabolism follows an intravenous dose of more than 1 mg. of this unique iodin-containing hormone. The average daily exhaustion of thyroxin in the tissues is estimated by Plummer to represent between 0.5 and 1 mg. A daily oral dose of 1.6 mg. of thyroxin will hold the basal metabolism of most thyroidless individuals within the normal limits.

It is, therefore, of obvious interest to learn something of the extent to which iodin occurs in the normal body. Kendall has estimated the amount in the tissues exclusive of the thyroid to be equivalent to that in 14 mg. of thyroxin.[1] There have been many analyses of human thyroids for their iodin content. In most cases, however, the glands examined were derived from persons who have died as a result of disease, so that the tissues secured postmortem have usually not been ideally selected for ascertaining the facts about the physiology of iodin. During the World War, Edgard Zunz [2] of Brussels had opportunities to collect the glands from healthy soldiers who succumbed to fatal wounds. The recently published data of his analyses show that the thyroids of men aged from 19 to 55 years tend to approximate from 26 to 30 gm., or 1 ounce in weight, of which about one quarter is represented by dry substance. The content of iodin in the Belgian specimens averaged 0.5 mg. for each gram of fresh tissue, there being little difference between the two lobes of the thyroid in this respect. They would thus contain an average total not exceeding 15 mg. of iodin for each person.

Apparently man's metabolic welfare depends in part on the maintenance of this seemingly insignificant yet actually indispensable store of iodin. The lack of the element is unquestionably the immediate cause of simple goiter, whatever the ultimate factors involved may prove to be. According to Marine, if the iodin store in the thyroid is maintained above 0.1 per cent., no hyperplastic changes, and therefore no goiter, can develop. The significant studies of Marine and Kimball [3] show that simple or endemic goiter, which is by no means uncommon in the United States and which may lead to later forms of degeneration or terminal metamorphoses of undeniable seriousness, can be prevented by the administration of from 3 to 5 mg. of iodin twice weekly, over a period of a month, and repeated twice yearly. A considerable mass of statistical data now available both here and abroad corroborate this finding. Is it not time for the medical profession to give special attention to this matter when simple goiter has an incidence of more than 75 per cent. among schoolchildren in certain regions? Marine and Kimball have not neglected to point out the possibilities and their consequences: if the prevention of goiter is good preventive medicine, it is better preventive surgery. With so simple, so rational and so cheap a means of prevention at our command, they add, this human scourge, which has taken its toll in misery, suffering and death throughout all ages, can and should be controlled, if not eliminated.

1. Plummer, H. S.: Interrelationship of Function of the Thyroid Gland and of Its Active Agent, Thyroxin, in the Tissues of the Body, J. A. M. A. **77**: 243 (July 23) 1921.

2. Zunz, Edgard: Recherches sur la composition chimique du corps thyroïde, Arch. internat. physiol. **16**: 288 (April) 1921.

3. Marine, David, and Kimball, O. P.: The Prevention of Simple Goiter in Man, J. A. M. A. **77**: 1068 (Oct. 1) 1921.

PROBLEMS OF CARBON MONOXID AND OTHER GASES

No technical development of the war was more striking than that of the use of gases. It is not generally realized that almost equally rapid, but more humane advances of knowledge regarding the use of gases and protection against them are occurring now during peace. As we recently pointed out, the increasing use of the gasoline engine in many fields has brought with it new problems regarding the influence of exhaust gases on health. Vehicular tunnels are being generally considered both as substitutes for bridges and as a means of decreasing distances and grades on highways in mountainous districts. In particular, the plan to construct tunnels under the Hudson River between New York and Jersey City for the use principally of motor vehicles has raised several problems which have not previously been sufficiently investigated. Much is known regarding the conditions and the precautions necessary to avoid gas hazards in coal mines and about

gas producer plants. But in such places only healthy men are to be protected. The conditions in such tunnels as those proposed at New York and elsewhere will affect the general public. The amount of traffic will be large; soldiers may march through such tunnels. The ventilation must therefore be ample to prevent not only danger but even slight discomfort. It must be managed in such a fashion as to avoid high wind velocities. The expense of artificial ventilation is likely to be one of the largest single items of maintenance.

Realizing the need of thorough investigation, the commissions of the states of New York and New Jersey contracted with the Bureau of Mines to undertake on their behalf the investigation of the two fundamental problems: (1) the amount and character of the exhaust gas produced by various types and sizes of passenger cars and trucks, and (2) the nature of the toxic substances in exhaust gas and their allowable concentration—that is, the extent to which the gas must be diluted with air to become practically harmless. On such data the ventilation of the tunnel may be intelligently based. The first of these problems has been worked out by Mr. A. C. Fieldner and his associates [1] of the Bureau of Mines at the Experiment Station in Pittsburgh. It has been shown that the percentage of carbon monoxid in exhaust gas may run from 1 or 2 up to 6 or 8, or from 1 to 2 cubic feet of carbon monoxid or more per car per minute, depending largely on the adjustment of the carburetor, a rich and smoky mixture producing much more carbon monoxid than a lean mixture.

The second problem, bearing more particularly on the physiologic conditions, was assigned to Dr. Yandell Henderson, consulting physiologist of the Bureau of Mines, who carried out the work with a staff of chemists and physiologists including H. W. Haggard and A. L. Prince in the physiologic laboratory at Yale University. The results of these investigations [2] and the principles formulated from them apply, not merely to the ventilation of tunnels, but equally well to conditions in garages and fire-rooms, to the air around gas producers, smelters and blast furnaces, to dwellings in which there is an escape of illuminating gas, and in general to all places where men are exposed to the gaseous products of incomplete combustion. The investigations have been extended also so as to cover several of the problems of illuminating gas poisoning and to develop suggestions for the treatment of acute carbon monoxid poisoning.

It was found that when fairly pure gasoline is used as the fuel in an automobile, the only considerable toxic substance in the exhaust gas is carbon monoxid. On the other hand, accessory toxic substances are present in illuminating gas and in the exhaust gas from cars using adulterated gasolines and particularly when coal distillate is used. The investigations afford unqualified support to the view that, apart from a single reaction, carbon monoxid is a physiologically inert and nonpoisonous substance. This reaction is its combination with hemoglobin, which is thus rendered incapable of transporting oxygen from the lungs to the tissues until the carbon monoxid is again displaced. Carbon monoxid is shown not to be in any degree whatever a tissue poison. The nervous disorders and lesions following asphyxia are due to the anoxemia and not to a direct action of carbon monoxid on the cells in the brain and heart. Thus, Haggard [3] in the Yale laboratory finds that pieces of the living and developing brain of a chick suspended in a hanging drop of chicken plasma at body temperature grow and develop quite as actively in an atmosphere of 79 per cent. monoxid and 21 per cent. oxygen as they do in air 79 per cent. nitrogen and 21 per cent. oxygen. This investigator has shown also by electrocardiographic studies that carbon monoxid exerts no direct toxic action on the cardiac conducting system, but acts wholly through asphyxia.

The tunnel gas investigations showed, in accord with the previous work of Haldane, Henderson and others, that the combination of carbon monoxid with hemoglobin is entirely and readily reversible. Red cells which have taken up a considerable percentage of their capacity for carbon monoxid and have given it off again are stated by these investigators to be as competent for the transport of oxygen as before. It seems, therefore, that the treatment heretofore advocated by some clinicians, and designed to stimulate the formation of new red cells by bleeding and the infusion of saline solution, lacks logical foundation. The degree and rate of absorption of carbon monoxid are found to depend on the concentration of the gas in the atmosphere, the time of exposure, and the volume of breathing. It is emphasized that the last factor varies with the amount of physical exertion.

Turning to the more abstruse and fundamental side of carbon monoxid asphyxia, Henderson and Haggard [4] have investigated the long accepted idea that this condition involves a typical condition of acidosis. They find, indeed, that under carbon monoxid asphyxia the blood alkali is greatly decreased, but they show that this decrease is not of acidotic origin. On the contrary, oxygen deficiency induces excessive overbreathing, thus blowing off an abnormal amount of carbon dioxid from the blood. The result of this acapnial process is that the blood is left abnormally alkaline, and this alkalosis is gradually overcome by the passage of alkali out of the blood. Thus, when a man is slowly asphyxiated by illuminating gas or a dog is asphyxiated under experimental conditions, the increasing oxygen

1. Fieldner, A. C.; Straub, A. A., and Jones, G. W.: J. Soc. Automotive Engineers, April, 1921; Bureau of Mines Report, March, 1921, Series No. 2225.

2. Henderson, Yandell; Haggard, H. W.; Teague, M. C.; Prince, A. L., and Wunderlich, R. M.: J. Indust. Hyg. 3: 79-92, 137-146, 1921.

3. Haggard, H. W., and Henderson, Yandell: The Treatment of Carbon Monoxid Poisoning, J. A. M. A. 77: 1065 (Oct. 1) 1921. Haggard, H. W.: Am. J. Physiol. 56: 390, 1921.

4. Haggard, H. W., and Henderson, Yandell: J. Biol. Chem. 47: 421, 1921.

deficiency as the blood gradually takes up more and more carbon monoxid induces such overbreathing that not only is the absorption of the gas increased, but an excessive amount of carbon dioxid is washed out of the blood. As the normal stimulus for breathing is carbon dioxid, a point is reached at which the lack of carbon dioxid results in failure of respiration. It is this condition that is chiefly responsible for the failure of breathing frequently observed immediately after the victim of a gassing accident is removed to fresh air. It is only as carbon dioxid reaccumulates in the blood that respiration gradually returns. It may then for a time be excessive because of the low alkali in the blood. But, according to these investigators, the alkali must be restored, or, as they express it, "recalled to the blood," by the body itself. This is, however, a slow process unless assisted. For this purpose and for the stimulation of respiration to a normal or more than normal volume, the subject is made to inhale oxygen to which a certain amount of carbon dioxid is added.[5] Under inhalation of this mixture, full breathing is rapidly induced; the mass action of oxygen rapidly displaces carbon monoxid from the blood, and the alkali is "recalled." Animals which have been rendered completely comatose are thus quickly restored to apparently complete normality. The investigators point out, however, that the effectiveness of this treatment for the overnight case of illuminating gas poisoning can be decided only by experience.

Turning to other aspects of the applications and hazards of gas, we find that the industrial importance of coal gas, instead of growing less with the introduction of electricity, is evidently likely to increase greatly in the near future. Thus, in evidence brought out before the recent hearing of the United States Senate finance committee on the chemical schedule of the tariff, it was shown that, owing to the present methods of burning coal, the loss in the United States of fertilizer alone, chiefly ammonium sulphate, amounts to more than $354,000,000 a year. According to this expert testimony all of our bituminous coal, instead of being burned direct, should be put through by-product coking ovens. By-products for the chemical industries, as well as ammonium sulphate, would thus be saved, and coal gas would be available more cheaply for industrial and household use. The coke, remaining after these substances have been distilled off, has nearly the same value for general fuel purposes as the original raw bituminous coal, since in the ordinary stove or furnace the gases are to a large extent driven off up the flue unconsumed. When the World War began, Germany was coking ten million tons more coal in by-product ovens than all the rest of the world combined. To this policy was largely due the German supremacy in dyestuffs, drugs and other chemical industries, as well as her ample supply of fertilizer, and in part also her supply of nitrogen for the manufacture of explosives.

From the medical standpoint it is noteworthy also that coal gas such as that produced in the coking process contains only about 7 per cent. of carbon monoxid, whereas the carbureted water gas (produced by blowing steam over hot coal and "fattening" with petroleum), as supplied by most city gas companies in America, contains nearly 30 per cent. of this most toxic constituent. The difference in the use of coal gas and water gas in their bearings upon health and safety is evidenced by a recent editorial[6] in the *British Medical Journal* in which an earnest protest is voiced against the government's allowing British gas companies to replace the coal gas, which they have hitherto supplied, with the far more toxic water gas. The editor emphasizes the point that, if the change is allowed, fatalities from gas poisoning may become as common in English as in American cities. To meet this implied indictment of our cities, we may comfort ourselves with the thought that if the advice of our chemists mentioned above is heeded, and all or nearly all our bituminous coal is coked, the supply of coal gas will be sufficient for our cities and for industry without recourse to the more poisonous water gas. This development would also help to conserve our supply of petroleum for other essential uses, since coal gas, unlike water gas, has sufficient luminosity without the addition of petroleum.

Finally, this survey would be incomplete without reference to the topic of gas masks. Here also the problems of peace are not less important than those of war. Indeed, the two are closely related. At the close of the war the American mask had reached a high degree of technical excellence, a development in which the chemists and physiologists of the Bureau of Mines played a major part. With the inspiration and collaboration of that bureau this mask has now been developed industrially to afford protection against ammonia leaks in cold storage plants, and against various acid fumes, vapors and smoke. In particular, a canister has been perfected for use with this mask containing "hopcalite," the new catalyst of carbon monoxid. With this protection the wearer may work with safety in an atmosphere containing a concentration of carbon monoxid which would otherwise be deadly. This mask will be of inestimable value to our city firemen, for carbon monoxid is the chief toxic constituent of smoke.

In all such problems the collaboration of physiologists with chemists and engineers is essential; and the former, while basing their contributions firmly on laboratory findings, carry them also far into practical fields. Evidently, as Sir Michael Foster once expressed it; the frog and the myograph, the dog and the kymograph, are not the alpha and the omega of physiology.

5. Henderson, Yandell, and Haggard, H. W.: J. Pharmacol. & Exper. Therap. **16**: 11 (Aug.) 1920.

6. The Dangers of Carbon Monoxide in Lighting Gas, Brit. M. J. **2**: 411 (Sept. 10) 1921.

POSSIBLE COMPLICATIONS OF THE STEINACH OPERATION

Among the many subjects of current interest to the medical profession are the various methods which have been proposed of recent years for the purpose of increasing longevity. The subject has been seized on with avidity by the lay press for its sensational interest. Moreover, the fact that elderly patients who are inclined to undergo operations with this end in view are usually well supplied financially, if not mentally, has caused the procedure to become still more a matter for publicity.

As has been pointed out in THE JOURNAL,[1] Steinach holds that ligation of the spermatic cords brings about, through stasis, an increased growth of the so-called puberty gland—the interstitial cells. He reported excellent results in increasing the longevity of animals by this method. Lichtenstern[2] applied the method to man, and reported improvement in five out of seven patients on whom he operated. Convinced by these reports that the method was of value, Kurt Mendel[3] referred to a surgeon for operation a man of 61. The technic of the bilateral operation included application of local anesthesia; then a 5 cm. (2 inch) incision was made at the lowest point of the scrotum to the right and left of the middle line. The testes were lifted out; the head of the epididymis and the supplying blood vessels were carefully dissected free, and the efferent ducts were exposed and ligated with firm silk. The operation was, thus, not on the vas deferens itself but between the head of the epididymis and the upper pole of the testis, at the point that Steinach recommends as the most promising, because here the vessels that supply the testis can be best avoided, and the effect of the stasis and thus the incitation to the increased growth of the puberty gland sets in more promptly. The results of the operation were disastrous. The day after the operation the patient walked up and down the room uttering threats and curses against physician and nurse. The wound healed rapidly and without reaction. The patient became calmer for a few days, but soon very serious mental disturbances developed. Loss of orientation for time and space developed. Memory for recent events became rapidly worse. At night he suffered from insomnia. Erections were more frequent, possibly, immediately after the operation, but the patient soon lost, for the most part, all signs of libido. A peculiar feature was the fact that the mind of the patient, who previously had been decent, seemed to run on sexual matters, while he indulged in the vilest vulgar expressions, accusing his wife of being a street walker and of enticing him into her room for immoral purposes. Three months after the operation the patient was committed to an institution in Pankow, where at first he was excited but later became calmer and even apathetic and somnolent, taking scarcely any nourishment. He died three weeks after commitment, with manifestations of respiratory paralysis.

As has also been pointed out previously in THE JOURNAL, it is necessary in all such operations to take into account the psychic effect on the patient. Psychic impotence and other psychic disturbances of a sexual character are not now new in medical practice. It is easily conceivable that the results of any operative procedure directed toward the sexual apparatus may have mental effects of a serious character.

1. What Determines the Development of the Secondary Sexual Characters, editorial, J. A. M. A. **58**: 484 (Feb. 17) 1912; The Modification of Secondary Sexual Characters, ibid. **62**: 618 (Feb. 21) 1914; The Problem of "Restoration of Youth," Vienna Letter, ibid. **75**: 490 (Aug. 14) 1920; Foreign News, ibid. **75**: 617 (Aug. 28) 1920; "The Puberty Glands," Berlin Letter, ibid. **75**: 755 (Sept. 11) 1920.
2. Lichtenstern, R.: Berl. klin. Wchnschr., 1920, No. 42.
3. Mendel, Kurt: Zur Beurteilung der Steinachschen Verjüngungsoperation, Deutsch. med. Wchnschr. **47**: 986 (Aug. 25) 1921.

THE ALLEGED FUNCTIONS OF THE SPLEEN

It is often quite as helpful to scientific progress to eradicate some of the unfounded and unsubstantiated assumptions that have crept into its literature as to contribute new facts and novel theories. This is particularly true in those fields which represent the borderline of the unknown or the domain of highly debatable questions. Much has been said and written about the spleen, an organ that is sufficiently conspicuous from an anatomic standpoint and sufficiently palpable in everyday life to arouse an interest in its presumable function. Occasionally it exhibits a variety of pathologic changes. Its physiology has long furnished a topic for speculation as well as ever recurring problems for scientific investigation. Yet the outcome of this uncertainty has been only the accumulation of a mass of data and the promulgation of a variety of views so indefinite, controversial or contradictory as to leave the reviewer of the situation well nigh bewildered.

The well established fact that both animals and man survive the surgical removal of the spleen without apparent serious detriment at once removes the organ from the list of indispensable structures like the suprarenals, the pancreas or the parathyroids, on the integrity of which life is demonstrably dependent. The intimate association of the spleen with the digestive apparatus and particularly with the portal circulation has naturally led to some speculative impressions. Changes in the size of the organ are known to occur during the digestive cycle; hence the idea that the spleen is merely a diverticulum of the portal circulation to receive the excess of blood rushed to the splanchnic area during the digestion period, and to act as an "abdominal heart" for supplying blood to the stomach and other viscera as needed. Again, the spleen has been represented as "an endocrine organ with the function of influencing, in an obscure manner, some portion of the digestive apparatus by way of the blood stream or of activating one or more of the digestive enzymes by an internal secretion." It is always easy to present analogies to other functions

in the body when the known facts do not suffice to establish a direct demonstration of fact. There are many other speculations regarding splenic activities on record, which need not be rehearsed here.

Recently the possible dependence of certain gastric functions on the integrity of the spleen have been brought into prominence. It has been alleged, for example, that splenectomy diminishes the digestive power of the stomach, and that this gastric function can be promoted by injections of extracts of the spleen. Here is an obviously fertile field for the medical advertiser's imagination. The pepsinogenic function of the spleen has, indeed, often been mentioned as a possibility of physiologic importance. Inlow [1] of the Mayo Foundation has put some of the questions here involved to the test of experiment, by studying the gastric secretion of animals under carefully controlled conditions before and after splenectomy. He failed to find the slightest evidence that the spleen gives to the blood stream during digestion a substance which activates or leads to the further elaboration of the gastric enzymes, especially pepsin. The only noteworthy change in gastric secretion after removal of the spleen was a slight diminution in the quantity of gastric juice secreted. This, Inlow contends, is presumably attributable to decreased gastric blood supply from injury to the gastrosplenic circulation after splenectomy. A definite pepsinogenic function, he adds, has not been demonstrated, and the relation of the spleen to gastric secretion is probably merely vascular. A negative conclusion not infrequently helps to secure positive progress.

1. Inlow, W. D.: The Spleen and Digestion, Am. J. M. Sc. **162**: 325 (Sept.) 1921.

Current Comment

OLOF HAMMARSTEN, PHYSIOLOGIC CHEMIST

The present year has included the celebration of the eightieth birthday anniversary of the distinguished Swedish physiologic chemist Olof Hammarsten, who was born, Aug. 21, 1841. To American medical readers he is well known as the author of a remarkable textbook of physiologic chemistry which, in its German and English translations, served an entire generation in the training of students in this branch of science. For many years it stood almost alone and unrivaled as a dependable reference book—a veritable encyclopedia of the progress in the chemical aspects of the physiologic sciences. Edition after edition attested the indefatigable energy and broad erudition of Professor Hammarsten of the University of Upsala. This work has truly left its impress on a considerable number of American physiologists and biochemists; and it is interesting to recall that the pioneer textbook on animal chemistry by the eminent Berzelius likewise was contributed from the Scandinavian peninsula by a professor of medicine and pharmacy a century ago. Time passes so rapidly that one generation of students takes for granted what their predecessors recognized as novelties and physiologic history in the making. In addition to bookmaking, Hammarsten's contributions to his science were manifold. Half a century ago he made the fundamental observations on the milk-curdling properties of the gastric juice and the behavior of rennin. He pointed out the rôle of calcium in the clotting of both milk and blood. To Hammarsten we owe many essential facts regarding casein—the chief protein of milk—the proteins of the blood, the mucous substances in the bile and other secretions, the bile itself; and his continued fruitful scientific activities are still evident in papers which have appeared in recent months. The eminent physiologic chemist of Upsala remains as a living example of the many-sided investigators who have almost disappeared in the present age of extreme specialization.

DISAPPEARANCE OF MALARIA IN TEMPERATE CLIMATES

Malaria, formerly a disease common to the temperate as well as to warmer climates, has now become practically extinct in the temperate zone and is rapidly disappearing even in warmer regions. Dr. C. Joyeux,[1] professor of parasitology in the Paris Medical School, has recently commented on the disappearance of the disease from France. There is evidence to show that this disease was extremely prevalent in France in past centuries. Now Joyeux presents evidence that the anopheles still abounds in many regions, although there has been little or no malaria for generations in these districts. He calls attention to the explanation for this paradoxical fact published simultaneously by Roubaud [2] in France and Wesenberg-Lund [3] in Denmark. According to these observers the mosquitoes, which used to feed on human blood, still do so in tropical countries; but in temperate zones they are attracted to barns and stables where they can find moisture, warmth and protection from the winds, and where they can feed on horses and cattle. According to Roubaud, in the course of time the mosquitoes have apparently developed a zoophile strain, being more attracted to cattle than to human blood. This has contributed to the elimination of malaria in the colder countries.

THE ERYTHROPOIETIC ACTION OF GERMANIUM DIOXID

What promises to be highly interesting work with the dioxid of the rare metal germanium has been started by J. H. Muller in the Harrison Chemical Laboratory of the University of Pennsylvania, and by Hammett and Nowrey in the Wistar Institute of Anatomy and Biology in Philadelphia. Germanium dioxid is not toxic for the white rat, and it has been determined by Hammett and Nowrey [4] that the injection of 0.4 per cent. solution in white rats produces a marked and statistically valid rise in the number of red corpuscles in the blood, without any corresponding increase in the number of leukocytes. The marrow and the liver in the injected rats show changes which indicate that these organs are affected by the injections.

1. Joyeux, C.: Presse méd. **29**: 1392 (Sept. 24) 1921.
2. Roubaud, E.: Ann. de l'Inst. Pasteur, April, 1920.
3. Wesenberg-Lund: Mém. Acad. roy. d. sc. **7**: 8, 1920-1921.
4. Hammett, F. S., and Nowrey, J. F.: The Erythropoietic Action of Germanium Dioxide, Wistar Institute Abstracts, 1921.

The results indicate that germanium dioxid is an erythropoietic agent of considerable potency and, as it is nontoxic, at least for the rat, the hope naturally arises that it may be found of value in diseases of the blood-forming organs that result in anemia.

DEATHS FROM AUTOMOBILE ACCIDENTS IN 1920

During the year 1920, according to a bulletin of the United States Bureau of the Census just received, 9,103 deaths resulted from automobile accidents, excluding motorcycles, in the registration area, representing 82 per cent. of our total population. The death rate per hundred thousand population from this cause has been gradually rising in the last five years, being 5.8 in 1915, 7.3 in 1916, 8.9 in 1917, 9.1 in 1918, 9.4 in 1919 and now 10.4 in 1920. During this period the number of registrations of such vehicles in the twenty-five states covered by the registration area in 1915 rose from 1,767,055 to 6,085,150. With a death rate from this cause as high as that from many of our most serious illnesses, the safety engineer must soon be accorded a place along with the public health official in the battle-line of preventive measures against premature mortality.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

New Member of State Board.—We are informed that Dr. John C. Yates of San Diego has been appointed as a member of the California board of medical examiners, vice Dr. Alfred J. Scott of Los Angeles, deceased.

Personal.—Dr. Lucy Wanzer, San Francisco, the first woman to be graduated from the University of California, recently celebrated her eightieth birthday and forty-fifth anniversary of her practice as a physician.

Nutrition Courses.—Because of the general recognition of the prevalence of nutrition problems among children of school age, the leaders in educational, public health and social service work in San Francisco have planned to hold a nutrition institute, November 9-23, at San Francisco. Dr. William R. P. Emerson, Boston, will conduct the institute.

Lane Lectures.—Dr. Luther Emmett Holt, emeritus professor of pediatrics, Columbia University College of Physicians and Surgeons, New York City, will deliver the Lane Medical Lectures in the Leland Stanford Junior University Medical School, San Francisco, December 5-10. Dr. Holt will also give a clinic on children's diseases, December 7, at the medical school.

Hospital News.—At the conference of the State Hospital and Home Superintendents at San Francisco, October 26, Ralph T. Fisher, director of state institutions of California, was elected chairman and Dr. Leonard Stocking, Agnews State Hospital, first vice chairman of the conference; Fred C. Nelles, Whittier State School, was elected second vice chairman, and Mrs. Cornelia M. Stanwood, secretary of the state board of charities and correction, secretary.——A hospital building to cost $40,000 is to be located on the County Hospital grounds at Eureka. The money has been appropriated for this building, which will be the first unit of the county tuberculosis hospital.——The new Jewish Ex-Patient Hospital, Belvedere Heights, Los Angeles, for tuberculous patients who have been treated at the Jewish sanatorium at Duarte, was opened, October 22. The structure cost $22,000 and will accommodate thirty-six patients.——A separate ward is being built for the most critical patients at the Tulare-Kings Joint Tuberculosis Hospital at Springfield, and the new nurses' quarters are practically completed.——According to a statement of Dr. Truman O. Boyd, resident surgeon and director of the Long Beach Sanatorium, $20,000 is being expended in improvements at the sanatorium.

ILLINOIS

Public Welfare Conference.—The state department of public health will actively participate in the first annual meeting of the Illinois State Public Welfare Conference to be held in Peoria, Dec. 4, 5 and 6.

Additions to Elgin State Hospital.—The state hospital at Elgin is building a new operative department, which it expects to have completed by Jan. 1, 1922. The new additions will include eighty ward beds besides nine beds intended for employees. The hospital for soldiers to be opened later will have a capacity of 206 beds.

Personal.—At a recent meeting of the Elgin Physicians' Club they celebrated the birthday of Dr. Albert W. Hinman, Dundee. Dr. Hinman, who was 76 years old, October 10, is one of the oldest physicians in active practice in this part of the state, having been engaged in the practice of medicine for more than forty years, and most of the time in Dundee.

Improvements in Rockford Hospital.—Rockford Hospital has been reorganized in conformity with standards of the American Medical Association, the American College of Surgeons, and the American Hospital Association. Recent improvements include the laboratory, which is in full charge of a physician as pathologist; also a children's clinic and an outpatient department.

School of Instruction for Health Officers.—The state department of public health is arranging a program for a school of instruction for health officers to be held in Springfield early in December. The school will be conducted primarily for the benefit of newly appointed district health superintendents who will work under the direction of the state department of public health; but the courses will also be open to local health officers who desire to attend.

Board of Public Health Advisers Holds Initial Meeting.—The first regular meeting of the recently appointed board of public health advisers was held in Chicago, October 22, with all members present. One of the more important matters considered was the subject of birth registration in Illinois. It was brought out that due to incomplete reports the state is still ineligible for admission into the U. S. Birth Registration Area, and this led to the adoption of resolutions recommending that the state department of public health institute and carry out a campaign designed to bring about satisfactory birth registration. The department has already taken the initial step in carrying out the recommendation of the board by addressing a letter on the subject of birth registration to the state and local medical societies. This will be followed at once by a similar letter addressed to all physicians (as nearly as possible) licensed to practice medicine in Illinois.

Chicago

Public Health Institute in Chicago.—Announcement has been made by the U. S. Public Health Service of a public health institute to be held in Chicago, March 13-18, inclusive, 1922. The institute will be under the direction of Dr. Isaac D. Rawlings, state director of public health in Illinois. It will be confined to the subject of venereal disease control and allied problems. Courses will be given in syphilis, gonorrhea, the delinquents, clinic management and work of the venereal disease health education nurse. The program will include special luncheon speakers, and daily and nightly visits to established clinics. A complete schedule for lectures has not yet been worked out, but it will embrace a number of the more prominent physicians and others in the field of social hygiene service. The entire program will be ready for publication in the near future.

INDIANA

Hospital News.—The contract has been awarded for the erection of the Blackford County Hospital for $55,115.

District Medical Meeting.—At a meeting of the Eighth District Medical Society, held October 21, at Muncie, Dr. Thomas Jones, Anderson, was elected president, and Dr. Clay A. Ball, Muncie, secretary-treasurer.

City Health Officer Fined.—According to the Bedford *Democrat* of Sept. 20, 1921, Dr. Harvey Voyles, city health officer, was fined $10 in the circuit court by Judge Cox on that date, after being found guilty of failing to establish a quarantine at the home of a child who was suffering from an attack of scarlet fever. The affidavit against the health officer was filed by Dr. John T. Freeland.

New Division of Housing.—The Indiana State Board of Health, according to law, instituted a new division of the board, October 1, known as the Housing Division. The director is Mr. W. F. Sharpe, an architect, and he is assisted by Mr. Albert E. Wert, who has had experience in housing work in New York City. This is the fourteenth division attached to the Indiana State Board of Health. Tenement house surveys will be made in the large cities as rapidly as possible and the exact conditions reported. All plans and specifications made by architects for hotels, lodging houses and tenements must be submitted to the state board of health for approval. The housing law of Indiana is a very complete and good law, and its every provision will be thoroughly enforced.

IOWA

Hospital Improved.—The Odebolt Hospital and Clinic, which was recently acquired from Dr. Wayne L. Stillman, has been overhauled with the addition of new furniture, covered floors, arc and treatment lights and a supply of radium. The laboratory is being installed and the institution will be made to serve as a community hospital, at least until normal conditions have returned for the building of a larger institution.

KENTUCKY

Personal.—Dr. Ralph J. Malott has resigned as full-time health officer of Harlan County, and as secretary of the Harlan County Medical Society to go to Williamson, W. Va., where he will organize and direct a full-time health department for Mingo County.

MARYLAND

Hospital News.—At the meeting of the Baltimore City Medical Society, held at Osler Hall, November 4, immediate action in selecting a site for a municipal hospital was urged in a resolution adopted unanimously, and opposition was expressed in locating the hospital at Bay View or at Sydenham.

MASSACHUSETTS

Massachusetts Medical Society.—An adjourned meeting of the council was held in the Boston Medical Library, November 9, to consider a report of a committee on malpractice indemnity and insurance.

Drug Firms Refuse to Handle Beer.—Three of the five largest wholesale druggists have issued statements that they would not handle beer for medicine unless the retail organizations forced them to do so.

Clinics Suggested for Rural Districts.—At the annual meeting of the Massachusetts Mental Hygiene Society, held recently at Boston, Dr. Austen Fox Riggs, Stockbridge, advocated the establishment of clinics throughout the rural districts where no preventive measures have yet been taken.

Hospital News.—The U. S. Public Health Service has bought the hospital building and 72.8 acres of land at Rutland from the Central New England Sanatorium, Inc., for $240,000. The building included in the sale is not yet completed and it is expected that changes may be made by the government. It will house about 300 patients and will be used for tuberculous war veterans.

Boston Association of Cardiac Clinics.—The object of this recently organized society is to further in any way the prevention and relief of heart disease in the community. A series of open meetings will be held during the next eight months, at which the discussion will not be limited to those especially trained in cardiology. The first meeting will be held, November 17, at the Massachusetts General Hospital. Dr. Paul A. White will speak on "The Diagnosis of Heart Disease," and Dr. Samuel A. Levine, on "Problems for Cardiovascular Research."

District Medical Meeting.—The four western district societies, Berkshire, Franklin, Hampshire and Hampden, met at Springfield, October 7, and effected an organization for the purpose of studying impending legislation of interest to the profession and making its influence felt in shaping its legislation relative to health matters. Dr. John Bartol, Boston, president of the state society, urged that the 4,000 physicians of Massachusetts unite to influence healthful legislation, not by lobbying but by free and proper statements from the medical profession of the rights and wrongs of impending legislation.

Personal.—Dr. Ernest B. Adleman, former house physician at St. Mary's Hospital, Detroit, has been appointed assistant physician at the Bridgewater State Hospital, Bridgewater. ——Dr. Clyde H. Merrill, Marlboro, was appointed by the governor as associate medical examiner of the Ninth District to succeed Dr. John J. Kelly, also of Marlboro, whose term has expired.——Appointments by Governor Cox that have recently been announced are: Dr. Fritz W. Gay, Malden, to be associate medical examiner of the second Middlesex district, to succeed William H. McBain, whose term has expired, and Elmer A. Stevens, Somerville, as associate member of the department of mental diseases.——Arthur Vincent Smith, Middleborough, was reappointed associate medical examiner of the fourth Plymouth district.

MICHIGAN

Jackson County Society Clinic.—Public interest was aroused in the Jackson County Society Clinic held, September 17-21, at the W. A. Foote Memorial Hospital, Jackson, and the cooperation of the press secured by the plan of having an open forum meeting for the general public on public health problems and furnishing medical men as speakers throughout the week for the various noon luncheon clubs of the city.

MINNESOTA

Personal.—Dr. Ronald L. Laney, Bemidji, has been appointed medical director of the Lake Julia Tuberculosis Sanatorium at Puposky.——Dr. Karl H. Van Norman, first assistant director, Johns Hopkins University, Baltimore, has been appointed superintendent of the Miller Hospital, St. Paul.——The governor has appointed Dr. Arthur T. Caine, Anoka, as a member of the Minnesota State Board of Health, to succeed the late Dr. Pierre A. Hilbert.

MISSISSIPPI

Hospital News.—The cornerstone of the new City Hospital at Brookhaven was laid, October 8, by the Masons.

Homochitto Valley Medical Society.—At the semiannual meeting, held, October 19, at Natchez, Dr. Thomas E. Hewitt, Liberty, was elected president; Drs. Marcus Beckman, Natchez, William R. Brumfield, Gloster, John W. Chisholm, Roxie, David S. Smith, Rodney, and J. W. Brandon, Jr., Woodville, vice presidents, and Dr. Jacob S. Ullman, Natchez, secretary-treasurer. The constitution was amended to provide a meeting in January, April, July and October instead of twice a year, as formerly.

MISSOURI

Reorganization of Medical Staff.—The Glenwood Sanatorium, Webster Groves, has announced the following reorganization of its medical staff: visiting consultants, Drs. Frank R. Fry, Sidney I. Schwab and Malcolm A. Bliss; visiting neurologist, Dr. Lewis D. Stevenson; resident physician, Dr. Raleigh K. Andrews.

NEBRASKA

Personal.—Dr. Fred Dieterich, formerly of the Rockefeller Foundation, has been elected head of the department of pathology and bacteriology at Creighton Medical College, Omaha.——Dr. Jacob H. Matthai, Newberry, Mich., formerly connected with the Nebraska State Hospital for the Insane at Norfolk, has been appointed superintendent of the Nebraska Orthopedic Hospital, Lincoln.

NEW HAMPSHIRE

Protest Against Sheppard-Towner Bill.—At the recent quarterly meeting of the Merrimack County Medical Society in Concord, resolutions were adopted protesting against the passing of the Sheppard-Towner Maternity Bill.

NEW JERSEY

Hudson County Medical Society.—At the October meeting, held at Jersey City under the presidency of Dr. Fred Quigley,

Dr. Samuel A. Cosgrove, Jersey City, was elected president; Dr. Lucius F. Donohoe, Bayonne, vice president; Dr. William H. Yeaton, Hoboken, secretary (reelected); Dr. Henry Brinkerhoff, Jersey City, treasurer (reelected).

NEW YORK

Resolution of Medical Society.—The Onondaga Medical Society, at its recent meeting in Syracuse, passed a resolution urging the common council to pass at once the measure requiring the pasteurization of all milk, except certified milk, offered for sale in Syracuse.

New Officers of District Medical Society.—At the recent meeting of the Fifth District Medical Society, held at Watertown, Dr. Walter Kidder, Oswego, was elected president, to succeed Dr. William D. Alsever, Syracuse; Dr. Nelson O. Brooks, Oneida, was reelected treasurer, and also made first vice president; Dr. Charles B. Forsythe, Alexandria Bay, was elected secretary, to succeed Dr. George W. Miles, Oneida.

Centennial Celebration.—The Medical Society of the County of Erie celebrated the one hundredth anniversary of its incorporation, October 17, and admitted a class of 100 new members, bringing its membership up to 816 out of about 900 registered physicians in the county. The exercises consisted of the dedication of the diagnostic and treatment clinic of the Buffalo City Hospital; continuous and parallel clinics in surgery by Dr. John D. Deaver, professor of surgery, University of Pennsylvania School of Medicine, Philadelphia; in medicine by Dr. Charles F. Hoover, professor of medicine, Western Reserve University School of Medicine, Cleveland, and demonstrations of podalic version by Dr. Irving W. Potter, associate professor in obstetrics, University of Buffalo Department of Medicine. Four hundred members sat down to the banquet. The society put on a health week campaign, for the general public, consisting of a series of exhibits (which it is hoped to make permanent) covering many phases of public health, hygiene and sanitation, industrial medicine, safety first, the municipal departments, foods, child welfare, the Red Cross, tuberculosis, venereal diseases, the U. S. Public Health Service and others; a series of moving pictures and stereopticon views covering many of the topics in the exhibits, and presented in the lectures, and thirty minute popular lectures during afternoons and evenings on various public health topics by fifty different members of the society. The interest of the public, as shown by the attendance, was phenomenal.

New York City

Hospital Faces Foreclosure.—The Volunteer Hospital is now in serious straits because of threatened foreclosure of a mortgage of $65,000, and other obligations totaling more than $150,000. A campaign for funds has been initiated.

Personal.—Dr. and Mrs. Alexander Hamilton Rice have sailed for Europe and will spend the winter in Nice.—Henry S. Pritchard, president of the Carnegie Foundation, delivered the Anniversary Discourse at the New York Academy of Medicine, November 3. His subject was "A Layman's View of Medical Progress."

Tuberculosis in Industry.—A conference was held in the rooms of the National Tuberculosis Association, October 22, to which representatives of labor unions and fraternal orders were invited. The object of the conference was to learn the conditions surrounding workers in various industries, and discuss a community health plan.

Harvey Society Lecture.—Dr. C. C. Little, research associate of the Station for Experimental Evolution, Carnegie Institution of Washington, D. C., will deliver the second Harvey Society Lecture at the New York Academy of Medicine, Saturday evening, November 26. His subject will be "The Relation of Genetics to Cancer Research."

Sight Seeing for Public Health.—A program has been carefully arranged for public health workers who will attend the fiftieth annual meeting of the American Public Health Association to be held in New York, November 14-18, and who are coming ahead of the convention crowds so that they can spend the week preceding, November 8-12, in looking over New York's resources for the conservation of human life. Fifty demonstrations have been arranged, including inspection of the various city departments. Government and state agencies will also demonstrate their health resources in New York.

National Cancer Week in New York.—During the observance of cancer week in this city the American Society for the Control of Cancer, with headquarters at 25 West Forty-Fifth Street, opened booths in the Grand Central Terminal and the Pennsylvania Station, where it circulated educational literature prepared for lay readers. More than 4,000,000 pamphlets and pieces of literature were distributed throughout the city by house to house canvassing. Numerous meetings were held throughout the city, the most important of which was at the New York Academy of Medicine on the evening of November 3.

Roosevelt Hospital Anniversary.—Roosevelt Hospital celebrated the fiftieth anniversary of its founding, November 2. Its founder, James H. Roosevelt, was the first of a long line of Roosevelts to be interested in the hospital, the present president of the institution being W. Emlen Roosevelt. The hospital has had three superintendents before the present incumbent in that office. In 1873, Roosevelt Hospital had 180 beds; at present it has 285 beds. In 1890, the McLane Operating Room, the gift of Dr. James W. McLane, was opened; in 1892, the William J. Syms Operating Theater. In 1898 the Catherine Bliss Ward for Children came into being, and in 1903 a recreation room for the house staff was given by Drs. Seth Milliken, Jr., and Frederick T. Van Buren, Jr. In 1911 a nurses' home containing 108 individual bedrooms came as an anonymous gift of friends of Dr. McLane, and the next year the Harriman Research Laboratory was built for special studies in metabolism and digestive ferments. In order that the charitable work of the hospital may be better coordinated and the dispensary and laboratory system extended, it is planned to erect a six-story addition to be given over entirely to free work. Funds for this will be raised by private subscription.

NORTH DAKOTA

Personal.—Dr. E. V. Scanner, who has had wide experience in health work in Cuba, Canal Zone and South America, has been appointed director of the North Dakota public health laboratory at Grand Forks.

OHIO

Conviction of Dr. Loewenthal to Stand.—It is reported that the United States supreme court has refused to review the case of Dr. Morits Loewenthal, Cleveland, convicted of violation of the Harrison Narcotic Law by selling morphin without a license.

New Tuberculosis Cottage Opened.—The new tuberculosis cottage of the Massillon State Hospital, at Massillon, accommodating thirty-five men and thirty-five women, was opened, October 1. The cottage is a one-story building so arranged that the greater part of the walls are of glass, by which an abundance of sunshine may be secured.

History of Cincinnati Health Exposition.—It has been announced that a complete history of the Cincinnati health exposition with pictures of practically every exhibit, both commercial and educational, is being compiled under the direction of the executive committee for distribution among health officials and city authorities from other sections of the country, who are daily requesting information that will enable them to stage similar expositions in their home cities.

Meeting of Academy of Medicine.—At the regular meeting of the Academy of Medicine of Cleveland, held, October 21, at the Cleveland Medical Library, under the presidency of Dr. William B. Chamberlin, Dr. Henry L. Sanford outlined the relation of the legislative committee to the justice survey and introduced its representative, Dr. Herman Adler, Illinois state criminologist and professor of criminology, University of Illinois College of Medicine, Chicago, who spoke on "Medical Science and Criminal Justice." Dr. Adler's recommendations are:

Mental and physical examination of every juvenile court child.

Creation of a division of mental health in the board of education and extended cooperation with juvenile court, and other agencies.

Creation of the position of chief psychiatrist with ample salary, staff and facilities for making mental and physical reports on cases coming before the probate, municipal and common pleas courts.

Abolishment of the office of coroner and the substitution of the medical examiner system now in use in Massachusetts and New York.

Appointment of three additional police surgeons, not only for examination of police recruits, but also to assist in the examination of suspected criminals.

The establishment of a privately supported institute or clinic, preferably in connection with the Western Reserve University, to investigate the nature and treatment of human behavior difficulties and to train and educate special workers and experts in this field.

Dr. Adler's suggestions were referred to the council of the Academy of Medicine for action.

PENNSYLVANIA

Philadelphia

College of Physicians of Philadelphia.—The sixth Mary Newbold lecture was delivered by Robert McCarrison, M.D., D.Sc., Indian Medical Service, at a special meeting of the College, held, November 11, at Philadelphia. Dr. McCarrison's subject was "Faulty Food in Relation to Endocrine Disorders."

Increase in Intoxication.—The number of intoxicated persons arrested during October increased remarkably in one station house of the city over the record of other months. Of the 905 arrests made during the month, 559 of the persons were charged with intoxication. The total arrests in the district for October exceeded the total arrests of any other three districts combined.

PHILIPPINE ISLANDS

Creation of Office of Public Welfare Commissioner.—One of the acts of the last Philippine Islands legislature was the creation in the Department of the Interior of the Office of Public Health Commissioner, which merges the former public welfare board (the government agency that coordinates and inspects organizations for public welfare and social service work in the Philippine Islands) with the former bureau for dependent children, which cared for orphans and the destitute, defective and delinquent classes of children.

Fifth Biennial Medicopharmaceutical Assembly. — The physicians and pharmacists of Manila are engaged in organizing the Quinta Asamblea de Médicos y Farmacéuticos de Filipinas, to be opened during carnival week in February, 1922, under the auspices of the Colegio-Médico-Farmacéutico. Dentists and veterinarians have been invited to join the Quinta Asamblea. This is a departure from the usual custom, physicians and pharmacists being the only participants at previous congresses. The change was deemed proper by the general committee and in keeping with the trend of the times to bring together more and more men following allied professions.

VERMONT

New Hospital.—The new Springfield Hospital at Springfield, with a capacity of thirty beds, is being completed and will be occupied about December 1.

TEXAS

Personal.—Dr. Richard L. Cooke, U. S. Public Health Service, formerly stationed at Washington, D. C., has been sent to Houston to take charge of health work at Camp Logan, where a large number of ex-service men are being taken care of. Dr. Cooke relieves Major Moreton A. Axline, who has been transferred to another station.

WASHINGTON

Children's Clinic Hospital.—As an outgrowth of the Junior Red Cross activities a children's hospital, practically equipped and partially supported by children themselves, has been established in Spokane. The Spokane Junior Red Cross has 16,000 members. They have made, and will renew periodically, the towels, bed linen, curtains and similar supplies for the hospital, and money from the Junior Red Cross purchased the full surgical equipment. The organization is now paying the salaries of two physicians, a dentist and a surgeon, as well as that of the attendant nurse. The board of education provides housing and fuel. There is no charge for treatment, but the parents of the children pay from 50 cents to $5, depending on their financial circumstances.

CANADA

Gift of Roentgen-Ray Equipment to Hospital.—A roentgen-ray equipment has recently been installed in the Charlotte Eleanor Englehart Memorial Hospital, Petrolia, Ont., as a gift from the late J. L. Englehart, one of the founders of Imperial Oil, Ltd., and a former resident of the town.

Peel County Medical Association.—The postgraduate course now being conducted at Brampton by the Peel County Medical Association has been so successful that arrangements have been made to hold it annually. The course lasts for six weeks. Lectures have been given recently by Dr. William E. Gallie, Dr. J. G. Middleton, and Dr. George S. Strathy, Toronto.

Hospital News.—In the annual report of the Woman's College Hospital, Toronto, special reference was made to the outdoor department, where 2,242 patients were treated during the year; 347 births took place in the hospital, while there were only twenty-six deaths. Of the 1,270 patients treated in the hospital during the year, 1,128 came from Toronto.

Royal Canadian Institute.—At a meeting of the Royal Canadian Institute held recently at the University of Toronto, Lieut.-Col. R. McCarrison, M.D., F.R.C.P., Laureate of the Academy of Medicine, Paris, France, gave an address on "Diet and Malnutrition." Lieut.-Col. McCarrison is in charge of important research work carried on by the Indian Medical Service in connection with the various diseases peculiar to India. During his stay in the city Colonel McCarrison is the guest of Prof. J. J. R. McLeod of the Faculty of Medicine, University of Toronto.

GENERAL

Southern Medical Association.—The fifteenth annual meeting of the Southern Medical Association of which Dr. Jerry L. Crooks, Jackson, Tenn., is president, will be held November 14-17, at Hot Springs, under the auspices of the Garland County-Hot Springs Medical Society and the Arkansas Medical Society.

Personal.—Dr. Clemens von Pirquet, Vienna, whose "pelidisi" formula for computing degrees of malnutrition was used by the American relief administration, in determining the most undernourished children in Austria at a time when every ration counted, has arrived in New York. He will deliver the Stillman course of lectures at Yale University this winter.

Journal of Orthopaedic Surgery.—Beginning with the January issue, the *Journal of Orthopaedic Surgery*, the official organ of the American Orthopedic Association and of the British Orthopaedic Association, has announced that the publication will change from a monthly to a quarterly publication. The journal will continue to be published in Boston under the existing management.

National Society for the Promotion of Occupational Therapy.—At the close of the recent session of the society at Baltimore, reported in THE JOURNAL, October 29, Dr. Herbert J. Hall, Marblehead, Mass., was reelected president. Dr. G. Canby Robinson, dean and professor of medicine, Vanderbilt University, Nashville, Tenn., is vice president, and Mrs. Eleanor Clarke Slagle, secretary-treasurer. Boston was selected for the 1922 convention.

National Anesthesia Research Society.—The board of governors of this organization at the convention held in Kansas City, Mo., October 24-28, decided to call a world's convention of anesthetists to be held in conjunction with the next annual meeting which will take place at Columbus, Ohio, in October, 1922. Invitations to participate will soon be sent to the leading and representative anesthetists in London, Paris, Vienna, Buenos Aires, Sydney and other world centers of importance.

Committee on Welfare of Immigrants.—Secretary of Labor Davis has appointed a special committee to consider the welfare of immigrants coming through the principal ports of entry of the United States. The members are: Fred C. Croxton, chairman of the Ohio council of social agencies; Miss Julia Lathrop, former head of the U. S. Children's Bureau; Miss Lola D. Lasker of New York. The committee has proceeded to Ellis Island, N. Y., to begin its work and later will visit the Boston and Philadelphia immigration stations.

Druggists Need No Special Permit to Supply Malt Liquors.—Druggists who hold permits authorizing them to handle and sell alcoholic liquors now have ample authority to sell beer for medicinal purposes, and no additional permit authority is necessary, it was announced recently at the Internal Revenue Bureau. Druggists, in their applications for permits to buy malt liquors, merely will be required to insert the words "malt liquors" or "beer" in such forms. Physicians will need no further authority or permits. This official view of the Internal Revenue Bureau dispels reports that the prohibition unit of the Treasury might require druggists to obtain new permits before they would be allowed to sell beer or other malt liquors.

New York and New England Association of Railway Surgeons.—The thirty-first annual session of the association was held, October 29, at New York City. Dr. George Chaffee, Binghamton, who is the founder, ex-president and corresponding secretary of the association, was presented with a

case containing $222 in gold, in recognition of his devotion and loyalty to the association in his thirty years' of able service. The following officers were elected for the ensuing year: Dr. Donald Guthrie, Sayre, Pa., president; Dr. James K. Stockwell, Oswego, N. Y., vice president; Dr. Edgar Vander Veer, Albany, N. Y., second vice president; Dr. James M. Hamilton, Rutland, Vt., treasurer; Dr. Horace H. LeSeur, Batavia, N. Y., recording secretary, and Dr. George H. Chaffee, Binghamton, N. Y., corresponding secretary.

LATIN AMERICA

Vaccination in Haiti.—Vaccination for smallpox is a legal requirement in Haiti and the vaccination must be renewed every seven years. It has been ruled that a child shall be vaccinated within one or three months after birth. Free vaccination is to be provided by the national Public Health Service and the hospitals and dispensaries subsidized by the state.

Labbé in Brazil.—Prof. M. Labbé after leaving Buenos Aires visited S. Paulo, Brazil, where he delivered addresses on diabetes, endocrinology, acidosis in diabetes, and infant feeding. He was tendered a banquet and took a trip to the interior of the state. At Rio he was also tendered a banquet and delivered an important address in the medical school on anaphylaxis and the hemoclasic crisis.

Hookworm in El Salvador.—According to the last report by Dr. C. A. Bailey, representative of the Rockefeller Commission in El Salvador, 36,162 persons, i. e., 92 per cent. of the people in the district covered, were examined, and 19,710, i. e., 54 per cent., were found infected with hookworm. Treatment was given to 17,180 and on reexamination 41 per cent. were found cured.

Cancer in Cuba.—In the last number of *Sanidad y Beneficencia*, the official bulletin of the Cuban Department of Public Health, an editorial is devoted to the increase of cancer in Cuba. While the statistics are admittedly incomplete, from 480 reported deaths and death rate of 26.5 per hundred thousand in 1900, death has shown a constant increase. In 1919, the number of deaths reported was 1,379 and the death rate had risen to 47.58 per hundred thousand.

The "Gazeta Medica da Bahia."—After a long intermission, this exchange has resumed publication, thus entering on its fifty-second year. The editorial staff comprises eight of the professors in the medical school, with Dr. A. Novis and Dr. A. Sampaio Tavares as the directors. Among the articles in the opening number is one on the skin manifestations of bubonic plague by E. Araujo. Only sixty cases with manifestations in the skin were encountered among the 827 cases of plague at the isolation hospital in his charge at Bahia, and forty-one of the sixty died. Only eight recovered of the thirty-six presenting pustules.

Personal.—Prof. Miguel Jiménez López of Bogotá, who is a member of the senate of Colombia, has been appointed on the council of the ministry of foreign relations.——Prof. Diego Carbonell, minister from Venezuela, addressed the National Academy of Medicine at Rio de Janeiro, saying that both as a diplomat and physician, he regards leprosy as the most important international problem from the standpoints of pathology and hygiene. He was speaking during a discussion of the contagiousness of leprosy, in view of preventing further importation into Brazil.

Resolutions Adopted by Venezuela Medical Congress.—Among the sixteen resolutions adopted by the Third National Medical Congress of Venezuela, which convened at Valencia in June, were some advocating the foundation of leagues to combat tetanus in children and for other welfare and preventive work; the construction of aqueducts to improve the water supply where needed; means to prevent the importation of adulterated drugs, especially quinin, emetin and arsphenamin; exemption of wire mosquito netting from customs duties and an active campaign against venereal disease, tuberculosis, malaria and alcoholism. The number of the *Gaceta Médica de Caracas* containing the report of the congress has only just arrived. The meeting was the most largely attended of all that have been held. Its principal aim was the study of the diseases most common in Venezuela, and, above all, the medical geography of the country. For this it called on the cooperation of the profession throughout the whole land.

FOREIGN

Radium Mines in Austria.—The *Wiener klinische Wochenschrift* confirms the cable report that the radium production at Joachimsthal has passed into the hands of a British company.

Honor for Indian Woman Physician.—Dr. Satyapriya Ghosh, graduate of Calcutta University, has been admitted into fellowship of the Royal College of Surgeons. She is the first Indian woman physician to receive this honor.

New Professors at St. Andrews.—At the opening of the winter session of St. Andrews University, Scotland, the newly appointed professor of chemistry, Dr. Robert Robinson, F.R.S., and the newly appointed professor of bacteriology, Dr. William J. Tullock, were inducted into their respective offices.

Prizes of the Académie des Sciences at Paris.—Among the eighteen prizes recently awarded was one to E. Roubaud for his works on malaria in France and the disappearance of malaria in temperate climates. Others were awarded to Prof. E. Sacquépée for his works on gas gangrene, to Foveau de Courmelles for his works on radiotherapy, and to A. Vernes for his atlas of syphilimetry.

Fiftieth Anniversary of Swiss Medical Society.—The fiftieth annual meeting of the Société Médicale de la Suisse Romande was held in October at Lausanne, Dr. M. H. Monnier of Neuchâtel presiding. The main addresses were on anaphylaxis and immunity; the endocrine glands in scurvy, and Feissly's report of experimental research on thromboplastic medication as affecting the coagulation of the blood in normal and hemophilic conditions.

Postgraduate Lectures at Sheffield Hospitals.—A postgraduate course of lectures and demonstrations in the Sheffield hospitals has been arranged by the faculty of medicine of the University of Sheffield, and will be given on Wednesdays and Fridays, October 12 to December 16. The course was opened at the Sheffield Royal Infirmary, when Professor Connell dealt with fractures and Professor Mellanby with recent views on diet.

Endowment of Chair of Bacteriology at Leeds University.—Sir Edward Allen Brotherton, Bt., M.P., has given £20,000 to the University of Leeds for the development of bacterial study and research, more particularly in the interests of public health. This is the largest individual gift ever received at the University of Leeds. Sir Edward Brotherton, who is an ex-lord mayor of Leeds, is chairman of the university's advisory committee on the department of pathology and bacteriology. This department is engaged in research into pathologic and bacteriologic questions as well as with the instruction of students, and also performs the bacterial tests required by the public health department of the city of Leeds.

Personal.—Prof. P. Clairmont of Zurich took a party of 100 medical students to Vienna recently for a two weeks round of the hospitals and institutes.——The seventieth birthday of Dr. Fritzsche of Glarus, Switzerland, was celebrated by his friends in October, and the *Schweizerische medizinische Wochenschrift* dedicated one issue to him.——The *Gazette des Hôpitaux* gives an illustration of the large medal presented to Prof. J. Boeckel as he presided at the recent French Surgical Congress at Strasbourg. He had maintained through all the years of German occupancy of Alsace the *Gazette Médicale de Strasbourg* until the war began, when he returned to Lyons to work in the military hospitals.

Deaths in Other Countries

Dr. **M. Denekamp,** a retired physician of Rotterdam, long residing in Brussels, aged 76.——Dr. **Hauben,** formerly professor at the University of Brussels, aged 88.——Dr. **Juan Antonio Rodrigues** of Montevideo, founder of the Instituto Profilactico de la Sifilis, aged 47.——Dr. **M. J. Bahia** of Rio de Janeiro, killed in an automobile accident.——Dr. **A. Pongs,** privatdozent for internal medicine at Frankfort on-the-Main.——Dr. **J. Adolpho da Silva,** a leading physician of Bahia, Brazil.——Dr. **M. A. Boullón Cavezudo** of Madrid.

CORRECTION

Personal.—Dr. Ellen C. Potter, reported in THE JOURNAL, September 24, as having been appointed head of the bureau of child welfare in the Pennsylvania Department of Public Welfare, should have been given as a graduate of the Women's Medical College of Pennsylvania and not of the University of Pennsylvania.

Government Services

Federal Board of Hospitalization

For the purpose of coordinating the separate hospitalization activities of the medical department of the Army, the bureau of medicine and surgery of the Navy, the Public Health Service, St. Elizabeth's Hospital, the National Home for Disabled Volunteer Soldiers, the Office of the Commissioner of Indian Affairs, and the U. S. Veterans' Bureau, a Federal Board of Hospitalization has been organized. It is to be composed of the following officials: An official to be designated by the President, who shall be known as Chief Coordinator and who shall be president of the board; the Surgeon General of the Army; the Surgeon General of the Navy; the Surgeon General of the Public Health Service; the superintendent of St. Elizabeth's Hospital; the President, board of managers, National Home for Disabled Volunteer Soldiers; the Commissioner of Indian Affairs; and the director of the U. S. Veterans' Bureau. Brig. Gen. Charles E. Sawyer, the President's private physician, has been appointed chief coordinator. The duties of the board include consideration of all questions relative to the coordination of hospitalization of the departments represented; standardization of requirements, expedition of the interdepartmental use of existing government facilities and elimination of duplication in the purchase of supplies and the erection of buildings; also the formulaton of plans designed to knit together in proper coordination the activities of the several departments and establishments, with a view to safeguarding the interests of the government and to increasing the usefulness and efficiency of the several organizations, and to report to the President thereon.

Brig. Gen. Sawyer, chief coordinator of the board, is authorized to preside over the board and to be responsible for its efficiency and for developing its activities along practical lines. After a full discussion of any question by the board, the decision of the chief coordinator is final as to any action to be taken or any policy to be pursued, but any member may appeal from the decision to his own immediate superior.

Regulations for Officers' Reserve Corps

A document of much interest to the medical profession of the United States has just been issued by the War Department. It is the regulations for the establishment of the Officers' Reserve Corps. As a result of its publication, a determined attempt will be made by the Surgeon General of the Army to induce as many as possible of the physicians and surgeons of the country to become members of this reserve organization. For this reason the regulations have been made extremely attractive to medical men engaged in private practice, both with reference to assignment to duties and to promotion. Experiences during the World War show that the organization of an effective medical reserve corps in times of peace is even more important than a reserve corps for the other branches of the service, because the first problem on assembling large bodies of troops for war is to be able to keep them in health. A brief summary of the regulations follows:

(*a*) Composition: The medical department reserve comprises medical, dental, veterinary, medical administration and sanitary sections. The medical, dental and veterinary sections are composed of graduates of reputable medical, dental and veterinary schools; the medical administrative section of persons having practical experiences in administrative duties pertaining to the Medical Department of the Army; the sanitary section of persons of broad experience and ability who have had practical experience in professions and occupations allied to special duties of the medical department exclusive of administrative duties. The latter comprises psychologists, sanitary engineers, food and nutrition experts, chemists, hospital architects, laboratory and roentgen-ray technicians, statisticians and technical men engaged in the production of supplies and appliances used by the medical department.

(*b*) Eligibility: Officers of the Army of the United States between April 6, 1917, and June 30, 1919, National Guard officers holding federally recognized commissions as such, June 4, 1920, and persons who served in the army between these dates and were recommended for commission may be appointed on examination of military records, supplemented by personal examination if necessary. Civilians, that is, those without previous military service, are eligible for appointment in the Reserve Corps on examination. After Nov. 11, 1923, no appointments will be made solely on the examination of records, and former officers will have to stand the same examinations as civilians.

(*c*) Appointment of officers of the World War will not be made in a grade higher than that previously held in the army.

(*d*) Period of Appointment: Five years. A reappointment will generally be tendered without examination.

(*e*) Acceptance of Appointment: There must be a formal acceptance or declination within sixty days.

(*f*) Assignment: Every reserve officer is to be assigned to a unit for specific duty for which it is contemplated to use him in time of emergency and for which it is contemplated to train him in time of peace. Officers will generally be assigned to units in proximity to their homes.

(*g*) Classifications: As a basis for assignment of the officers of the medical department, reserve sections are classified by the Surgeon General according to their special qualifications as determined by a review of their entire military record and of the "personal report and statement of preferences of the reserve officers, themselves." Groups are accordingly made up representing every specialty of medical practice to the end that intelligent and appropriate assignments can be made. The two main groups are then separated —the territorial assignment group and the branch assignment group. The former comprises those officers especially suited to fill the positions in the medical department of the military units to be organized by the corps area commanders. The branch assignment group comprises those held for assignment by the Surgeon General to special duties and activities not included in those organized by the corps area commanders. These will include hospital functions behind the division, such as surgical, evacuation, convalescent and general hospitals, and other medical units of the communication zone of the interior.

(*h*) Active Duty: According to the law, no reserve officer shall be employed for more than fifteen days in any calendar year without his consent except in time of a national emergency expressly declared by Congress. So far as practicable, the personal desires of officers to be called to active duty will be considered when funds for training for only a portion of the reserve force in any year are available. The funds appropriated by Congress are at present insufficient to train any considerable number of reserve officers, even volunteers.

(*i*) Exemption from Active Duty: A reserve officer called to active duty for training purposes during any calendar year and on whom such duty, for business or other reasons, would work a hardship, will, on request, be exempt from such tour of duty.

(*j*) Pay and Allowances: These will be the same as for officers of the regular army of the same grade.

(*k*) Promotions: They are made under the following conditions:

1. An officer must signify his willingness and must be recommended to be examined for promotion.
2. An officer must have served the prescribed minimum time in the grade from which promotion is contemplated.
3. An officer must have satisfactorily passed the promotion examination.

The examinations for promotion are conducted by a board of three officers. The applicant for promotion must have served three years in the lower grade. He is given credit for double time for service during the war.

Surgeon General Ireland of the Regular Army has declared that the regulations are so advantageous as to offer an opportunity to every medical man in the country to enter the reserve corps and assist in the general scheme of medical preparedness for war.

MEDICAL OFFICERS, UNITED STATES NAVY, RELIEVED FROM ACTIVE DUTY

MASSACHUSETTS
Boston—Horton, W. V.

NEW YORK
New York—Finnegan, J. F.

PENNSYLVANIA
York—Hostetter, R. D.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 15, 1921.

The Medical Service of the Army After the War

At the war section of the Royal Society of Medicine, Sir John Goodwin, director-general of the Army Medical Service, delivered a presidential address on the medical service of the army after the war. He stated that, on the cessation of hostilities, the release of temporary officers to meet the requirements of the civil population, the closure of hospitals, so that expenditure might be reduced and public buildings used as hospitals might resume their normal function, the organization of a satisfactory dental service, and the bringing up to date of all orders, regulations and war establishments, so that these might be in accordance with modern requirements and with the lessons of the war, were pressing desiderata. At the time of the armistice, there were more than 364,000 military hospital beds in the United Kingdom alone; at present there are less than 8,000. An army dental corps has been established. The compilation of the official history of the war has been begun under the editorship of Sir William Macpherson. The object of the history is to preserve for future generations a record of war diseases as we encountered them during the course of the campaign. This record should prove of great value in future wars. But its value may also extend to peace time, for much important research work has been done in both medicine and surgery. The first volume of the medical history of the war, dealing with medical service in the United Kingdom, garrisons overseas, and the colonial expeditions is about to be issued. The first volume of the "Diseases of the War" is almost ready for issue, the first volume of the "Surgery of the War" is complete in galley proof, and the second volume of both these works is only awaiting the addition of a few chapters. A volume on the hygiene of the war is being prepared for the press next year, by Sir William Horrocks. A volume on the pathology of the war is also being prepared. Professional libraries are being established in all the larger military hospitals, so that officers may have at hand the most recent works for reference. The valuable Army Medical War Museum has already been described (THE JOURNAL, Oct. 15, 1921, p. 1266). The specimens have been mounted and exhibited as a special collection at the Royal College of Surgeons. The government has now decided to pay to the college $37,500, and the college has generously agreed for this sum to house, maintain and care for, and complete the preparation of the entire pathologic collection of war specimens and also certain selected facial and orthopedic exhibits.

Marriage a Disqualification for an Official Post

A curious situation has arisen in the borough of St. Pancras (London). The assistant medical officer, a woman, had the audacity to marry. She was at once asked to resign by the borough council. She declined to do this and gave the following reasons: (1) Resignation on marriage was not a condition of her engagement. (2) No resolution has been passed by the council requiring women to resign on marriage, although the engagements of certain women had been terminated. (3) She sees no reason why she should be singled out from the other women physicians employed by the council for special inquiries and treatment. (4) She calls attention to the sex disqualification act of 1919, laying down the principle that "a person shall not be disqualified by sex or marriage from the exercise of any public function, or from being appointed to or holding any civil or judicial post, or from entering or assuming or carrying on any civil profession or vocation." The Women's Local Government Society has forwarded a resolution to the council expressing the view that marriage should be no disqualification to the employment or the promotion of women in civil service, the teaching or other professions, or in industry, and that strong representations on this matter should be made to the government and local governing bodies. However, the council by a large majority decided to dismiss the medical officer.

The London Water Supply

The fifteenth annual report of the Metropolitan Water Board, by the director of water examination, Sir Alexander Houston, is an important contribution to the general question of the purification of raw river water. The methods adopted by the board are storage, filtration and, in recent years, chlorination. It was only as recently as 1902 that Houston observed that the number of excremental bacteria was enormously reduced by storage, and he later found that it devitalized the microbes of water-borne diseases, such as typhoid fever and cholera, and that it reduced the amount of suspended matter, color and ammoniacal nitrogen. This system has proved effective in providing a pure water supply, but it entails considerable cost in pumping. About five years ago it was decided to experiment with chlorination of a portion of the Thames water, which could be effected without pumping. The process proved so satisfactory that it has been continued, and a population of 2,000,000 has been supplied with chlorinated water without a single complaint as to taste. This substitution of chlorination for storage has effected an annual saving of $100,000. Another advantage is that, while storage gives the least satisfactory results in winter, the results of chlorination are even better than in summer. The water so treated is tasteless and colorless, and absolute protection against epidemic water-borne disease is conferred, for the total elimination of *B. coli* shows that the typhoid bacillus and the cholera vibrio are destroyed.

Anthrax from Shaving Brushes

The prohibition of the importation of shaving brushes from Japan, because those imported from that country had been found to be contaminated with anthrax bacilli and were the source of cases of the disease in this country, has been reported in previous letters. The ministry of health has now issued a circular with regard to shaving brushes made in this country. The minister is advised that, as the hair in brushes after their manufacture cannot be effectively sterilized, it is essential for the protection of the public health that all practicable measures should be taken to insure that the hair used for making shaving brushes is efficiently disinfected before the brushes are manufactured. He draws attention to the methods of disinfecting hair recommended by a departmental committee on the disinfection of horsehair. The formaldehyd process for the disinfection of wool is equally efficient for hair but requires the installation of a special plant and machinery, and effect cannot immediately be given to it. Adequate disinfection of horsehair for shaving brushes by ordinary chemical processes is extremely difficult on account of the high resistance of the anthrax spores and the protection afforded to them by clots of blood, grease and other substances. The most trustworthy method of disinfection is by steam under pressure at a temperature which should not exceed 230 F., for at least thirty minutes. A higher temperature may seriously damage horsehair. The minister suggests that local authorities possessing efficient steam disinfecting apparatus should afford brush manufacturers facilities for disinfection of hair. Records should be kept of all material disinfected.

PARIS

(From Our Regular Correspondent)

Oct. 14, 1921.

Second Congress of the Association of French Speaking Gynecologists and Obstetricians

The second congress of the Association of French Speaking Gynecologists and Obstetricians was recently held in Paris, from September 29 to October 1, under the presidency of Dr. J.-L. Faure, professor of clinical gynecology in the medical department of the University of Paris, who delivered an interesting lecture on the application of radium to uterine fibromas and uterine cancers. This lecture might well have been entitled, "The Future of Gynecology and Obstetrics." Dr. Faure believes that, in the course of the twentieth century, medicine will gradually reconquer from surgery what the latter has taken away from medicine, and it was with a certain tone of sadness that he said these words: "We who have participated in the wonderful expansion of surgery, who have seen it at what appears to be its apogee, and who feel that today it is in danger of losing something of the grandeur to which we have brought it, let us not view it with too much bitterness or too many regrets if it should go down a gradual incline leading toward an unknown future . . . for whatever evolution it undergoes is sure to be for the good of humanity." On the other hand, Dr. Faure thinks that the future of obstetrics is destined to become more and more brilliant, for nothing can ever rock the immovable foundation of this branch of medicine. No doubt, some day, there will be no more accidents due to infection, but the weakness of human nature will remain, and there will always be enough cases to satisfy the obstetrician's need of action and his consciousness of the greatness of his specialty, even though such cases should be confined to the infinite variety of interventions necessitated by dystocia. The future will thus doubtless see the expansion of the operative field of obstetrics, while that of gynecology will gradually diminish.

THE THYROID IN RELATION TO PREGNANCY

Drs. Fruhinsholz and Parisot of Nancy were the essayists, and they treated the subject partly from the experimental and partly from the clinical standpoint. From the clinical angle, Fruhinsholz reviewed successively, as far as overactivity of the thyroid body is concerned, the forms of hyperthyroidism appearing before pregnancy, during pregnancy and after pregnancy. It would seem that pregnancy brings about, through a physiologic process, a state of compensatory hyperthyroidism, which tends to manifest itself more plainly during the second half of pregnancy. This hyperthyroidism may go beyond the limits of compensation, in the strict sense of the word, and may become pathologic. Evidence of pathologic hyperthyroidism may appear during any of the stages of pregnancy. Sometimes it does not betray itself until after delivery, as if it had been kept, throughout the period of pregnancy, in a sort of temporary neutralization. As a rule, a state of hyperthyroidism is not favorable to fecundation. Hyperthyroidism existing before pregnancy is often alleviated by the latter, as if the state of pregnancy brought neutralizing elements into action. However, hypothyroidism seems even less favorable to fecundation than hyperthyroidism. If fecundation occurs, in spite of this fact, the effect of pregnancy on preexisting hypothyroidism may be ameliorating (when the hypothyroidism is slight and the thyroid gland shows a sufficient reactional tendency to the gravidic stimulus); aggravated (when hypothyroidism is such that the gland does not possess sufficient power of adaptation to allow it to make the required effort toward restitution), or entirely indifferent. During the course of the discussion that followed this report, Dr. Béclère of Paris stated that pregnancy is rare in exophthalmic goiter on account of the fact that menstruation is usually suppressed. The most effectual treatment for exophthalmic goiter is roentgenotherapy, and, long before the disappearance of basedowian symptoms, menstruation reappears and this is one of the first signs of improvement. In case pregnancy brings about an aggravation of hyperthyroidism, Béclère advises roentgenotherapy. He confirmed the alleviating effect of pregnancy on Basedow's syndrome, and reported the case of a woman who had several pregnancies and was in good health only during pregnancy. Just as hyperthyroidism suppresses menstruation, so the overactivity of also the pituitary gland causes amenorrhea, and, in the latter case, roentgenotherapeutic treatment likewise brings about a reappearance of the menses. It seems that the ovaries are very sensitive and that they reflect, through amenorrhea, the secretory disturbances of certain other glands.

HYSTERECTOMY IN ACUTE PUERPERAL INFECTION

According to Dr. Potvin of Brussels, who had been delegated to discuss the subject, the importance of this question lies in the frequency of acute puerperal infection, which, even at the present day, reaches at times 10 per cent. of all cases of childbirth. On the other hand, the difficulty in the choice of treatment must be reckoned with. The thought of saving the uterus should not be taken into account, but the physician should ask himself these two questions: (1) Is it too late for any other form of treatment than hysterectomy? (2) Can hysterectomy (either abdominal or vaginal) save the patient? Before reaching a decision, we must be sure that it is the uterus or the adnexa that is the principal or the only cause of the continuance of the infection. The essayist then discussed, in turn, the following questions: 1. Shall we consider hysterectomy as a means of treatment in acute puerperal infection? 2. At which moment and in what cases should it be performed? 3. What method of hysterectomy shall we employ? This important fact must be borne in mind: Retention of placental fragments is the substratum of the infection; these must be promptly removed from the organism, and if the infection still persists, it indicates that it had already passed beyond the stage at which it could have been checked by means of local treatment (curettage or écouvillonage). If this local treatment (cleansing of the uterus in conjunction with injections of camphorated oil, etc.) does not give immediate results, and, more especially, if new complications arise, then we must resort to hysterectomy.

Dr. Cotte of Lyons, co-essayist, held that hysterectomy is only exceptionally indicated in acute puerperal infection. In the light of present-day knowledge, aside from the cases in which there is a lesion of the uterus necessitating its immediate removal, hysterectomy cannot be regarded, at the beginning of a puerperal infection, as a necessary intervention to check its evolution, for we have no means whatever of predicting at that moment how serious the infection will prove to be. Primary acute puerperal septicemia is still out of reach of known medical or surgical therapeutic means. However, we may resort to intervention for fear that the septicemic condition may be due to an unobserved local lesion, in which case we might regret later that we neglected to intervene. In acute forms, due to abortion, and especially to criminal abortion, hysterectomy should be done at once in grave cases which give the impression that curettage might risk spreading the infection. In other cases, when the usual means have not brought noticeable improvement, we must promptly resort to intervention. Vaginal hysterectomy, extolled for thirty years by J.-L. Faure, seems here particularly indicated; but intervention is especially important in remittent types of prolonged acute infection, which so often cause death by

secondary septicemia or secondary pyemia. When, on the one hand, signs of grave infection, with tendency to pyemia, repeated chills, etc., exist, and, on the other hand, the uterus, still enlarged, presents, upon examination of the lochia collected directly from its cavity, colonies of streptococci, it would seem that the best thing to do is to intervene without delay, by means of either vaginal hysterectomy or abdominal hysterectomy. The latter route will be chosen in cases in which there is a phlebitis of the veins supplying the uterus and ovaries; in cases in which the infection has spread beyond the pelvis toward the abdominal peritoneum, and when signs of peritoneal reaction appear in addition to signs of general infection.

Dr. Anderodias, associate professor of the School of Medicine of Bordeaux, spoke of the analogy that exists between a war wound and a uterine lesion, and endorsed the use of Carrel's method of intermittent irrigation by means of a rubber urethral sound. Of 152 infected women who were thus treated, 133 were cured in from two to eight days.

Dr. Bourcart of Geneva said that in the case of failure or inconstancy of the ordinary means, it is well to try to increase the natural defenses of the organism and particularly the antitoxic functions of the liver. He holds that insufficiency of the liver is due, above all, to circulatory insufficiency in the organ, and to improve the circulation he advises the daily application, for twenty or thirty minutes, of a light manual vibratory massage of the region of the liver and that patients be given exercises in deep breathing.

RADIUM THERAPY

Prof. J.-L. Faure believes that the time is not yet come when we can pass a definitive judgment on the treatment of fibromas with radium. A surgeon who loves his art should make a real effort to remain impartial in debates on the question, in which all sorts of ideas and the most conflicting opinions are heard. Faure thinks that a great number of patients, more especially those who are suffering from hemorrhagic fibromas of moderate size, should be treated with radium. These are the patients who will be most benefited by such treatment, and it should be recommended to them, and, since there are many such, representing as they do perhaps the majority of patients with fibromas requiring treatment, an important field is thus opened to radium therapy. There are also other patients for whom this treatment should be endorsed; namely, those who seem too weak to undergo so radical an operation as abdominal hysterectomy. Although, when it is properly performed and no particular operative difficulties occur, abdominal hysterectomy requires only a quarter of an hour and causes the loss of only a few drops of blood, it is nevertheless a trying operation for exhausted, bloodless and obese patients; especially the last mentioned, as is well known, do not bear abdominal operations well, and such operations are also more difficult to perform on them than on others. The majority of other patients should be operated on.

Dr. Hartmann, professor of clinical surgery in the medical department of the University of Paris, submitted a report on radium therapy as applied to cancer of the cervix uteri and of the body of the uterus. From this report it appears that cancer of the uterus is the type of malignant growth that has benefited most from the introduction of radium therapy into surgical therapeutics. For frankly inoperable cancers the use of radium therapy and its superiority to palliative treatment are unquestionable. It arrests bloody or other discharges, reduces the pain, cicatrizes ulcerations, seems to check, for a while at least, the progress of the disease, and brings about a manifest improvement in the general condition of the patient. Should we combine intra-abdominal radium therapy or deep roentgenotherapy with vaginal applications? This question has been a subject for investigation, of late, and we can now assert that by these various treatments—if not cures—at least unexpected ameliorations have been realized in cases that were previously considered incurable.

Dr. Koenig of Geneva spoke, in his report, on radium therapy as applied to hemorrhagic metritis apart from cancer and uterine fibromas. He does not regard radium therapy as a panacea for uterine hemorrhage any more than he does a curet. Within the narrow limits of these indications, we can already affirm that radium is a sure and prompt hemostatic for all uterine hemorrhages not due to cancer, to fibroma, to neoplasia or to inflammations of the adnexa. It is harmless as applied to women 40 years of age or more, in whom the interruption of menstruation, while it may not be absolutely desirable, does not cause serious disturbances. In such cases it is the preferred treatment and may be used without hesitation to the exclusion of all other gynecologic methods. With respect to younger women, in whom it is important to preserve the normal function of the ovary, radium therapy, until such time as the technic of radium application shall permit a more exact gradation of dosage, will remain contraindicated unless all ordinary gynecologic methods of treatment have failed. The presence of adnexitis, if acute, is an absolute contraindication to radium therapy in any form, and if it is chronic, intra-uterine radium therapy is contraindicated.

BELGIUM

(From Our Regular Correspondent)

Liége, Oct. 19, 1921.

Measures Against Dissemination of Transmissible Diseases

The minister of the interior has directed the attention of the physicians on whom rests the important duty of supervising the fulfilment of sanitary measures to the following points: 1. In all frank or suspicious cases of transmissible diseases; more especially, pulmonary tuberculosis, typhoid fever, smallpox, diphtheria, scarlet fever, dysentery, cholera morbus, so-called epidemic cerebrospinal meningitis, puerperal fever, syphilis, gonorrhea, etc., in which the services of health officers have been solicited, they should promptly institute, in conjunction with the necessary treatment, all indicated prophylactic measures and see that they are carried out, in order to prevent contagion and the dissemination of infectious organisms. 2. They should suggest, and if need be, take personally the necessary steps to insure the effective isolation of patients. The persons with whom patients come in contact should be given the necessary instructions to insure the efficacy of these measures. 3. They should report all cases to the chief health officer of their province, in accordance with the instructions contained in the royal edict of Feb. 13, 1915. 4. They should encourage bacteriologic or biologic diagnosis in all suspicious cases but, more especially, cases of typhoid fever, diphtheria, dysentery, pulmonary tuberculosis, venereal diseases, cancer, etc. 5. They should attend regularly to the disinfection of patients and, if need be, of nurses, utensils, rooms, etc., during the course of the disease and see to the final disinfection at the termination of the disease. 6. They should instruct the patients and their friends and attendants in the precautions to be taken to prevent dissemination of certain diseases (typhoid fever, diphtheria, etc.) by bacillus carriers.

Education of Abnormal Children

Dr. Decroly recently submitted an interesting report on the aid to be given to abnormal children and to those in general who cannot take advantage of the ordinary educational institutions. In the same manner that we now lend assistance in grave and pronounced cases—to the deaf, the

blind, the insane and the sick—so likewise, in accordance with the principle of public instruction—let us say, compulsory education—we should instruct and educate the other categories of children who cannot take advantage of the ordinary schools and who constitute an obstacle to the good functioning of the school. The problem raises four essential questions: 1. What children should be considered as needing a new regimen or special instruction? (1) Those who on entering school are declared, after observation and examination by competent persons, to be unfit to follow ordinary courses of instruction and who also constitute an obstacle or a frank and continual menace to their comrades; (2) those who are found, while attending school and after previous examination by competent persons, to be in the same condition as those previously mentioned, and (3) those who, on account of sickness, irregular attendance, apart from all disturbances of sensory, mental or motor functions, are at least two years behind in their studies. Dr. Decroly recommends the creation of classes in which these abnormal children can be fully educated and demands at least one school in every rural commune, that will serve several communes, accommodating both boarding and day pupils. Before the children are assigned to classes, they will be subjected to a very careful examination, which will take into account the information obtained by looking up antecedents and school and family reactions, the environment in which the child has been reared, physical examination and the application of tests enabling the authorities to secure data on the sensory, intellectual, emotional and motor state. This system, which ought to become general in Belgium, exists already in certain centers, especially in the province of Brabant, where provincial institutes and a medicopedagogic clinic have been established.

Compulsory Physical Education in Belgium

Monsieur Destrée, minister of science and art, among whose functions public instruction and consequently physical education are also included, has introduced a bill providing for compulsory physical education in all educational institutions under government supervision or subsidized by the state. Young men not attending any educational institution are directed to register for physical instruction with certain authorized societies. The bill provides also for a council on physical education, in connection with the ministry of science and art, with the duty of giving advice, either on request of the minister or voluntarily, on all questions pertaining to physical instruction, and especially in matters concerning courses and methods, the preparation to be required of instructors and special training courses for physical directors. The council is also empowered to promote any enterprise that will contribute to the development of physical education, to favor private undertakings and to render opinions on the qualifications of societies for physical instruction. In addition, communes of more than 5,000 inhabitants are obliged to install and to maintain at least a playground and a gymnasium, accessible to all children in the public schools, as well as to members of recognized societies. A swimming pool will also be established whenever possible. Communes may make use of private equipment if it fulfils the required conditions mentioned above. Several communes may also, if necessary, combine and use one establishment in common.

Shipment of Radium from the United States

On August 19, one gram (more exactly, 1.17 gm.) of radium, carefully packed and triply sealed in twenty small tubes, arrived in Belgium from the United States, via London. It was recently purchased by the Belgian Red Cross Society and is intended for use in the hospitals of the country. This gram of radium cost the Red Cross 900,000 francs. When the radium shall have been transferred into special tubes—this operation being done in Paris by specialists—it will be sent back to Brussels and will be kept at the Red Cross Institute, where it will be at the disposal of patients. A certain well known practitioner, who has employed radium extensively in his private practice and is especially competent in the use of it, will doubtless be appointed to take charge of this special branch of service. All patients, irrespective of their economic status, may hereafter enjoy the benefit of radium therapy. Available funds in the hands of the Red Cross permitted the immediate purchase of the radium, whereas, if it had been left to the government or to any hospital service, several years would doubtless have elapsed before the purchase could have been made. Moreover, it would never have been placed at the disposal of all patients throughout Belgium, as will be the case now that it is under the control of the Red Cross Institute.

VIENNA

(From Our Regular Correspondent)

Oct. 15, 1921.

Damages Claimed by the Donor of Blood in a Case of Transfusion

Some time ago, the supreme court of justice was called on to decide as to the validity of a claim for damages, which a young girl was said to have sustained by the act of giving blood for a transfusion without her consent being asked. It appeared that the girl, a primipara, aged 18, was an inmate of the first gynecologic clinic, awaiting there the delivery of her child. She was called one night into the operating theater, and a quantity of blood said to have amounted to half a pint (236 c.c.) was taken from her arm vein. She did not remonstrate at that time. Later on she was told that she had done an invaluable service to the clinic by giving her blood to transfuse it into a very ill woman, at that time a patient at the clinic, and a small sum of money was given to her. The girl now claimed that since that time she had decidedly lost in health, had become weakly and anemic, and could no more make up for the loss of the blood. After protracted hearings—the action took more than a year—the ordinary court decided that the girl had not been wronged and that her complaints were not due to the loss of blood, as alleged. The clinical physicians, in a rider, were criticized for not having told beforehand to the girl that she would have to act as donor. The court of appeal consented to that judgment, and put it down as a rule that, transfusion being a recognized method of treatment, its use should not be discontinued as long as healthy blood was available to save a life, and the donor was not put to considerable disadvantage or did not distinctly refuse to give his (or her) blood. The legal proceedings of that case were watched with great interest by the profession because an important question was at stake.

Government Promotion of Graduate Medical Instruction for Country Practitioners

For about a year, regular courses, lasting from one to two weeks, and comprising the most important subjects necessary for the country practitioner in order to keep up his scientific standard, have been organized by the ministry of health for such men as apply for it. These classes are held four times a year, either in Vienna or in one of the capital towns of the provinces, where a large hospital enables the lecturers to show the practical side of the classes as well. Only a nominal fee is charged, and a large percentage of the members of such classes find free board and lodgings at the cost of the state in the hospitals or in hotels. Physicians are eligible to these classes only through the agency of their respective medical boards, and cannot apply more often than once every

two years. Among the subjects thus chosen are: the duties of a school physician; the work of a doctor of public health; inspection of meat, cattle and agricultural products; general hygienic and prophylactic methods; modern serotherapeutics; modern biology and climatology; the advances of surgery and of organotherapy; treatment by roentgen rays and radium; cancer in women, and its early detection and others. The advantages to the general practitioner thus offered nearly free of charge have resulted in a steady increase of the bookings for these classes, and the idea is regarded by the profession as one of the happiest that the ministry has adopted.

The Vienna Lupus Institute

Our city boasts of an institute for treatment of lupus which has no rival on the continent, and this in spite of the reduced means of our state. In 1913, a thoroughly equipped building had been erected and put in working order, but only a few weeks before the outbreak of the war it was opened officially and did excellent work during the war and thereafter. Situated in a lofty area of nearly 20,000 square meters (23,923 square yards), 18,000 square meters (21,530 square yards) being garden and 2,000 square meters (2,393 square yards) being covered by buildings and pavilions, it commands an excellent view, is swept by breezes and is in clear sunshine. The house is finished in white; it contains six large compounds of Finsen apparatus, each compound consisting of four lamps so that twenty-four patients can be treated at one time, or more than 200 a day, on the lines worked out by Dr. Finsen. In the three stories of the building, there are special rooms for the treatment of the mucous membranes and the eye, nose, larynx and ears; two dressing rooms for postoperative treatment; laboratories for chemical, bacteriologic and microscopic examinations; a photographic outfit, with laboratory: a roentgen-ray department with the latest apparatus; a modern operating theater; a room with three quartz lamps; a room for radium treatment, and disinfection plants. The institute will accommodate from eighty to a hundred patients, including about twenty children. It must be kept in mind that a proportion of the patients, especially those from abroad or from the country, will not find lodgings, owing to the disfigurement produced by their disease. These are received on part time. Of course, ample arrangements for baths—Turkish, swimming and tub—have been made, besides the required administrative and recreative buildings. A special feature is the roof garden adopted for open air treatment, combined with constant insolation as at Leysin (Switzerland) in Dr. Rollier's Hospital for Tuberculosis. Since the opening of the first home for lupus some time before the war, no fewer than 5,825 persons have applied for treatment, of whom 42 per cent. were males; 15 per cent. were children under 14 years of age. The number of cases of lupus was 3,100; the remainder consisted of dermatoses of other nature. Up to the end of 1914, no less than 398 lupus patients were treated by plastic operations, while now the figure stands at 639. The remainder were subjected to roentgen-ray treatment (36 per cent.), radium (20 per cent.), uviol lamp (6 per cent.), Finsen light (15 per cent.), while the rest were treated with high frequency current, artificial sunlight, or diathermy. As regards the result, the Finsen light gave a very satisfactory method of treatment also for lupus erythematosus, acne rosacea, superficial nevi, alopecia and trachoma. The latter disease was cured by repeated sittings of from ten to twenty minutes each, while lupus required sittings between fifty and eighty minutes. Excellent results are obtained also by plastic operations, which are also the quickest method for a cure. The material at the disposal of the institute showed that tuberculosis of the skin began in the first years of life in more than 3 per cent., or in 19 per cent. if the first five years was considered. A marked drop occurred at the age of 18 and onward, while from the forty-eighth year the beginning of the disease seems to be rather an exception. But there were cases in which illness commenced not before the sixty-eighth year, and even in the seventy-second year (four cases). The occupation does not seem to play a prominent part; domestic servants are rather often victims of the disease, but all other occupations are also present among the patients. However, there was not a single physician in the number. The patients came—and still are coming—from all parts of the world: Italians, Russians, Egyptians, Turks, Chinese, Greeks and negroes. A special department has been devoted to nasal prosthesis, in order to hide the disfigurement of numerous patients, which makes them unfit for social work. The artificial noses are modeled from a special composition of wax, being very elastic and having a melting point of from 60 to 70 C. (140 to 158 F.), colored in a most artistic way, and really hardly discernible even on close inspection. The only drawback is their short durability, which necessitates frequent renovation; but the patient soon learns to do this himself, and thus becomes independent of the institute.

Marriages

DANIEL W. SHUMAKER, Dover, Ohio, to Mrs. Matie C. McCullough of New Philadelphia, Ohio, at Washington, D. C., October 19.

EDWARD DUNCAN MIDDLETON, Davenport, Iowa, to Miss Nora Seccombe of Peterboro, N. H., October 20.

PEYTON MONCURE CHICHESTER, Richmond, Va., to Miss Marie Cunningham of Savanah, Ga., August 18.

NICANDRO FRANCIS DECESARE, Lawrence, Mass., to Miss Ada Victoria Moulton of Eliot, Me., October 5.

WILLIAM EDWARD DONOHUE, Manitowoc, Wis., to Miss Kathryn Carey of Berlin, Wis., September 14.

HAROLD SIMON HATCH, Indianapolis, to Miss Violet Wilmetta Brewer of Southport, Ind., August 5.

ROBERT L. MCCLURE, Gosport, Ind., to Miss Lorene J. Eaton of Princeton, Ind., at Franklin, August 22.

CHESTER WARREN HOWARD, Crawfordsville, Ind., to Miss LaVerna Schultz of Newtown, August 27.

MAURICE KELLOGG SMITH to Miss Margaret Perry Blanchard, both of New York City, October 29.

PHILIP W. WHITELY, Chicago, to Miss Florence Alice Kirchoff of Hampshire, Ill., October 11.

BURTON W. MACK, Philadelphia, to Miss Ruth Nicholson of Chicago, October 8, at Philadelphia.

FRANK CHURCHILL HODGES to Miss Aline S. Adams, both of Huntingdon, W. Va., September 14.

CLAUDE EDWIN HALE, Marshall, Mich., to Miss Ruth Ann Mauk of Martinsville, Ill., August 28.

WILLIAM SHARNLINE MIDDLETON to Miss Maude Webster, both of Madison, Wis., September 30.

GEORGE HANLON DAY, Louisville, Ky., to Miss Catherine C. Hilpp of Lebanon, September 22.

NICHOLAS FREDERICK WENY to Miss Gladys McClian, both of Little Rock, Ark., August 10.

KATHRYN MARION WHITTEN, Fort Wayne, Ind., to A. H. Unhank of Marion, August 24.

HENRY GOLDEN, Philadelphia, Pa., to Mrs. Anna Gee Goldstone of Chicago, October 30.

FREDERICK E. HARRISON to Miss Mittie Smith, both of Fordyce, Ark., September 28.

F. W. URTON, Louisville, Ky., to Miss Ida Cooper Pryor of Carrolton, September 20.

JOHN P. COUGHLIN to Miss Edwina Marie Suess, both of Chicago, October 20.

ALBERT J. RANDALL to Mrs. Lillian Galvin, both of Kenosha, Wis., September 30.

SIDNEY WIGGINS to Miss Pansy Jones, both of Rock Island, Ill., October 14.

Deaths

Thomas Bryan Roche, San Francisco; University of California, San Francisco, 1898; member of the San Francisco board of health; at one time superintendent of the City and County Hospital; served during the late war as captain, M. C., U. S. Army; member of the American Legion; died, October 20, from injuries received in an accident, aged 48.

Thomas C. Thornton, Lewisburg, Pa.; University of Vermont, Burlington, 1862; member of the Medical Society of the State of Pennsylvania; veteran of the Civil War; secretary of the board of health and health officer of Lewisburg; practitioner for over fifty years; died, October 21, from organic disease of the heart, aged 83.

George T. Mounsey ✱ Louisville, Ky.; Louisville Medical College, 1894; Hospital College of Medicine, Central University of Kentucky, Louisville, 1895; Kentucky School of Medicine, Louisville, 1899; formerly instructor in pediatrics, University of Louisville; died, October 23, from pleuropneumonia, aged 59.

Charles J. Boswell ✱ Mounds, Ill.; Marion-Sims College of Medicine, St. Louis, 1895; surgeon of the Illinois Central Railroad for twenty years; member of the Illinois state board of health; mayor of Mounds for two terms; president of the state bank; died, October 22, from a duodenal ulcer, aged 45.

Henry J. Blankmeyer, Jr., Gabriels, N. Y.; Jefferson Medical College, Philadelphia, 1903; member of the Medical Society of the State of New York; resident physician at the Sanatorium Gabriels for fifteen years; died, October 22, at Philadelphia while on his vacation, from tuberculosis, aged 42.

Robert E. Jones ✱ Crystal Springs, Miss.; Eclectic Medical College, Cincinnati, 1868; Medical Department, University of Louisiana, New Orleans, 1869; practitioner for over half a century; at one time president of the Mississippi State Medical Association; died, October 25, aged 78.

Henry Clay Chisolm ✱ Huntingdon, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1888; member of the state legislature, 1897-1900; died, October 27, at Niagara Falls, where he had gone to recuperate from a general breakdown due to overwork, aged 62.

Henry H. Levy, Richmond, Va.; Medical College of Virginia, Richmond, 1871; emeritus professor of practice of medicine at his alma mater; died, October 20, at the Stuart Circle Hospital, after an illness of two years following fracture of the femur, aged 71.

John Wilson Gibbs, New York City; Eclectic Medical College of the City of New York, 1878; Civil War veteran; member of the state health department, 1881-1894; served as United States pension examiner in New York; died suddenly, October 28, aged 77.

Joseph T. Clarke ✱ San Francisco; University of Virginia, Charlottesville, 1887; colonel, M. C., U. S. Army, and served in the corps for thirty-two years; honorable discharge, June, 1901; died at the Presidio, October 25, from heart disease, aged 59.

Mary Lucinda Vincent, Chicago; University of Michigan, Ann Arbor, 1875; practitioner in Chicago for forty-two years; former physician at the Sarah Hackett Stevenson Home, where she died, November 2, from heart disease, aged 82.

Chambers Morton Lindley, Princeton, Ind.; Medical College of Ohio, Cincinnati, 1860; member of the Indiana State Medical Association; practitioner for over half a century; died, October 26, at the Methodist Hospital, aged 89.

John F. Stockwell ✱ Baton Rouge, La.; Memphis (Tenn.) Hospital Medical College, 1912; formerly on the staff of St. Joseph's Hospital, Memphis; former assistant parish health officer; died, October 26, from typhoid fever, aged 32.

Oscar W. Shreve, Holden, W. Va.; University of Louisville, Ky., 1910; died, October 22, from injuries received several months ago when hit on the head with the butt of a revolver by a drunken man, resulting in paralysis, aged 57.

Charles F. Carnes, Kosciusko, Miss.; Memphis (Tenn.) Hospital Medical College, Memphis, 1881; member of the Mississippi State Medical Association; died, October 18, at the Baptist Memorial Hospital, Memphis, aged 66.

Vilmas Condory, San Francisco; University of Budapest, Hungary, 1869; Spanish-American War veteran; died, October 28, in the Harbor Emergency Hospital, from chronic myocarditis and arteriosclerosis, aged 84.

William Marshall Alrich, Philadelphia; University of Pennsylvania, Philadelphia, 1889; member of the Medical Society of the State of Pennsylvania; died suddenly, October 27, from heart disease, aged 58.

Albert Spurgeon Barnes ✱ Columbus, Ohio; Rush Medical College, Chicago, 1900; member of the Columbus Academy of Medicine; took his own life by severing the femoral vein, October 23, aged 57.

L. P. Sorrell, Leasville, N. C.; Medical College of Virginia, Richmond, 1875; member of the Medical Society of the State of North Carolina; died, October 24, at the Rex Hospital, Raleigh, aged 72.

John Hiett ✱ Ione, Wash.; Marion-Sims College of Medicine, St. Louis, 1892; served in the M. C., U. S. Army, during the late war; died at Spokane, Wash., October 11, from carcinoma, aged 49.

Albert Garfield Koch, Kansas City, Mo.; College of Physicians and Surgeons, Chicago, 1907; served during the late war as lieutenant, M. C., U. S. Army; died suddenly, October 23, aged 41.

Jeheil H. Patrick, New York City; University of City of New York, 1893; member of the Medical Association of Greater New York; died, October 25, from heart disease, aged 53.

Solomon S. Golden, Chicago; Chicago College of Medicine and Surgery, 1913; served in France during the late war as lieutenant, M. C., U. S. Army; died, November 3, aged 48.

Robert Walter, Walter's Park, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1888; died, October 26, at Reading, Pa., from a complication of diseases, aged 80.

Edward O'Reilly Maguire ✱ Derby, Conn.; Columbia University, College of Physicians and Surgeons, New York City, 1898; died, August 15, at New Haven, Conn., aged 49.

Espy Milo Williams, Monroe, La.; Medical Department Tulane University, New Orleans, 1904; was found died in his room at St. Francis Sanatorium, October 19, aged 41.

Samuel Stephen McCrum, Lone Oak, Texas; University of Nashville, Tenn., 1891; University of Tennessee, Memphis, 1892; died, September 22, in a local hospital, aged 63.

Jonathan Titus Deyo, Brooklyn; New York Homeopathic Medical College and Flower Hospital, New York City, 1870; died suddenly, October 27, from heart disease, aged 75.

Samuel W. Badger, Athens, Pa.; Bellevue Hospital College, New York City, 1873; member of the Medical Society of the State of New York; died, September 27, aged 70.

William A. Wiseman ✱ Camargo, Ill.; Jefferson Medical College, Philadelphia, 1886; president of the Douglas County Medical Association; died, October 15, aged 68.

Oba Haley, Fredericktown, Mo.; Missouri Medical College, St. Louis, 1879; member of the Missouri State Medical Association; died, September 20, aged 74.

Joseph P. Isley, Polo, Mo.; Eclectic Medical University, Kansas City, 1906; member of the Missouri State Medical Association; died, September 1, aged 44.

Everind Alexander Kirkpatrick, Halifax, N. S.; McGill University, Faculty of Medicine, Montreal, 1888; died, September 23, aged 60.

Charles Ross Bennett ✱ McHenry, Ky.; Chicago College of Medicine and Surgery, 1913; died, October 2, from angina pectoris, aged 35.

William H. DeLacy, Crestview, Fla.; Atlanta College of Physicians and Surgeons, Atlanta, Ga., 1899; died, October 13, aged 43.

James Henry Phillips, Westlock, Alta., Canada; Rush Medical College, Chicago, 1878; formerly of Chicago; died, August 25.

Vera F. Bary, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1878; died suddenly, October 2, aged 75.

Elijah Alvis Davidson, Richmond, Tenn.; University of Nashville, 1873; died, October 12, from chronic nephritis, aged 76.

Cornelius L. Hatfield, Orenco, Ore.; Rush Medical College, Chicago, 1883; died, October 14, from senility, aged 76.

Frisby T. McKaig, Andrews, N. C.; University of Alabama, Mobile, 1890; died, August 25, aged 56.

✱ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

INTRAVENOUS COMPOUND (LOFFLER)

Its Composition and the Peculiar Methods by Which It Is Exploited

For some time past inquiries have been received regarding Charles Lyman Loffler, his Post-graduate Course in Intravenous Therapy and especially relative to "Intravenous Compound (Loffler)." For instance a physician writes:

"Can you tell me anything about the Physicians Drug Syndicate. . . . They are pushing the sale of Thymozene and offering One Hundred Dollars worth of stock fully paid and non-assessable, free to those sending in their order, and also a copy of Dr. Loffler's Lectures on the Blood."

And from another physician:

"What do you know of Charles Loffler, M.D., and his Intravenous Compound? A few evenings ago a man who appeared to be about 40 years old came to my office and tried to interest me in the above mentioned article; he claimed to be Dr. Charles Loffler of Chicago. With him was a young lady whom he introduced as Miss B———. Miss B———, said that she had been with Dr. X——— [a physician of high standing in Los Angeles] for two months and that he was using the Intravenous Compound; also quoted other physicians . . . His whole layout looks quackish and were it not for the fact that he showed me a letter that appeared to be from Dr. X——— I should not have given him a second thought."

And this also:

"Charles Loffler, M.D., or his agent was traveling around inducing one M.D. in each town to take up his methods of blood examination and treatment and with a little advertising of blood examinations free the doctor selected gets quite a run of patronage."

Another physician writes:

"My attention has been called by another physician to Loffler's Intra-Venous Compound. May I trouble you to give me any information that you may have with regard to its composition and its value as a therapeutic agent?"

C. L. Loffler does business from Rooms 1101-1102, Venetian Bldg., Chicago, the location of the "Intravenous Chemical Co.," the "Physicians Drug Syndicate" and the "Ma-Oze Chemical Co." Of these, more later. THE JOURNAL has in its files a large amount of material regarding Loffler. A brief resumé of that part of the material dealing with Loffler's professional activities will be given for the purpose of allowing physicians to evaluate the scientific status of Loffler's "Lectures," "Post-Graduate Courses," his therapeutic "discoveries" and his products.

It seems that Loffler was reared in Yankton, S. D. In 1898-1899 Loffler was a senior student at John Creighton Medical College, but, for reasons that need not be gone into here, he was never graduated. He received a diploma from Barnes Medical College in 1900, and in the same year was licensed to practice in South Dakota. In 1902 he was at Le Mars, Iowa; in 1904 his name appears in the medical directory, under Sioux Falls, S. D., as "Specialist in Chronic Troubles."

THE INTRAVENOUS COMPANY IN COLORADO

Charles L. Loffler's "specialty" is "Intravenous Medication." In 1912 and 1913, as the Intravenous Company of Colorado Springs, he was sending out a booklet entitled "Consumption." This described the alleged marvelous results to be obtained in the treatment of tuberculosis by the use of "Intravenous Compound"; there was also a side line, "The Loffler Internal Bath Plate." At that time the administration of "Intravenous Compound" was recommended intravenously, hypodermically, by rectum, by mouth and even by insufflation. When the stuff was to be given by rectum, the recommendation was made: "First wash out the bowels with a preliminary injection of two or three quarts of warm water, using for this purpose the Loffler Internal Bath."

In 1913 Loffler sought a larger field for his peculiar talents and left Colorado Springs. After a short stay in Denver he is next found in Minneapolis, where he was also "engaged in the practice of intravenous therapy" and, incidentally, seems to have been an organizer and manager of a common law concern known as the Automatic Thrasher Co.

THE PHYSICIANS' DRUG SYNDICATE

In 1919 we find Loffler in Chicago as president of the "Physicians Drug Syndicate." This concern—another common law organization—had for its vice president one A. E. Erling, M.D., and for its secretary and treasurer, Arthur C. Hanson. Erling was discussed[1] in an article that appeared in THE JOURNAL, July 5, 1919, on the egregious "Allied Medical Association of America" of which organization C. L. Loffler was "President" in 1918.

Hanson, the secretary and treasurer of the Physicians Drug Syndicate, is said to have hailed originally from Minot, N. D., where he was in the drug business. His name appears in the Propaganda files as the manager of the Ma-Oze Chemical Co. of Minneapolis, which, in October, 1919, was advertising in a daily paper of that city:

"Protect yourself against influenza. Don't let the germs get a foothold in your system. Kill them with Ma-Oze Antiseptic Powder. Use it as a gargle. It is . . . sure death to all kinds of disease germs."

In a preliminary statement sent out by Hanson in the early part of 1919 it seems that the Physicians Drug Syndicate was conceived "primarily to supply physicians with a product to be used in Leucorrhea and personal cleanliness of women." This product, apparently, was the Ma-Oze of influenza fame in Minneapolis. It was to be put out, however, under the name of "Thymozene," which, "packed in 4 ounce unlabeled carton for dispensing," would "show nearly 100 per cent. profit to the organization over the profit which you make if you dispense your own drug."

THYMOZENE, FREE STOCK—AND EVERYTHING

In October, 1919, the Physicians Drug Syndicate was circularizing physicians in Iowa trying to get them to send in $6 for "1 Dozen Thymozene 4 oz." For this $6 the doctors were to get, in addition to the marvelous Thymozene, the following rights, privileges and emoluments:

1. A free Post-Graduate Course in Intravenous Therapy by Dr. Charles Loffler.
2. A gift of $100 worth of stock in the Physicians Drug Syndicate.
3. A copy of Dr. Loffler's Lectures on Blood.
4. The privilege of purchasing future supplies of Thymozene "at wholesale prices less discount of 33⅓ per cent."

The letter making these offers mentioned incidentally:

"Besides our product Thymozene we have been forced to add a Uterine Wafer to be used in connection with hot Thymozene douches in Leucorrhea. These wafers are simply miracle workers."

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1. Here is what THE JOURNAL published on Erling:

A. E. Erling, according to the stationery, is "Chairman" of "Censors." Our records fail to show that Erling ever graduated in medicine. The Health Department of Milwaukee, however, says that Erling, when interviewed, claimed to have "a diploma from the German Medical College of Chicago, but refused to show or present the same." The American Medical Directory has this item:

German Medical College, Chicago. Chartered Dec. 28, 1891, by Johann Malok. Fraudulent. Extinct.

A few years ago Erling was in La Crosse, Wis., and in 1908 a circular letter bearing his name and picture was sent out, from which the following extracts are taken. Capitalization as in the original:

"Dear Friend:—Permit me to call your attention to the fact that Dr. A. E. Erling, the eminent specialist, after many years of travel, practice and medical research, has given up his extensive road practice and severed his connection with the several medical institutes which have heretofore occupied considerable of his attention . . . Dr. Erling's success in the treatment of all CHRONIC DISEASES is truly remarkable. NERVOUSNESS, all BLOOD DISEASES, RHEUMATISM, DISEASES PECULIAR TO WOMEN, CATARRH, DEAFNESS, CHRONIC CONSTIPATION . . . APPENDICITIS . . . PILES, STOMACH TROUBLES, PARTIAL PARALYSIS, etc., give way as if by magic under his skilful method of treatment . . . Understand, please, that Dr. Erling DOES NOT ACCEPT A CASE FOR TREATMENT unless he can PROMISE A SPEEDY AND POSITIVELY PERMANENT CURE."

THE JOURNAL also has in its files advertisements (vintage of 1915), from some Wisconsin country newspapers, which notify the afflicted that "Drs. Erling and Karass, the expert German Specialists," could be seen in their offices in the "Schlegel Hotel," the "Schlitz Hotel," etc., as the case might be. Whether one of these "German Specialists" was Dr. Arnold E. Erling, THE JOURNAL does not know. Official medical records fail to show, at least, that there is any other Erling in the state of Wisconsin.

In addition to this circular letter there was a membership blank leaflet detailing the marvels of "Thymozene." There was another leaflet headed in very large, black type "Influenza" and recommending "Ma-Oze Antiseptic Powder" or "Thymozene" for this condition. Still another leaflet accompanying it lauded "Intravenous Compound (Loffler)" and reprinted laudatory puffs of this preparation that were credited to H. H. Witherstine, M.D., Rochester, Minn., Joseph B. Klinehans, M.D., Chicago, and the "Loring Park Sanatorium" of Minneapolis.

In addition to the Intravenous Compound (Loffler) there is, of course, certain "apparatus for the giving of the treatment" which the Intravenous Chemical Co. supplies. The "compound" must be given just so, and the Intravenous Chemical Co. "reserves the right to refuse to supply any physician with Intravenous Compound (Loffler) who, either through lack of proper apparatus or proper care in preparation of solution, or for any reason, uses it in such a manner that will cast discredit upon it."

The complete apparatus, including 2 ounces of Intravenous Compound (Loffler), sells for $24. What is Intravenous Compound? Apparently, nobody knows except Charles L. Loffler who asks physicians to inject—and we regret to say some are injecting—this nostrum of unknown composition into the veins of their patients. To a physician who had raised the point of secrecy Loffler wrote in part:

"I am sure that you will agree with me that it is far better to place this treatment in the hands of competent physicians, such as Dr. Witherstine, and many more whose names I will gladly send you, and to protect the honest and competent doctor who investigates and takes up the work, than to publish the formula and give to the unscrupulous a chance to try to make the product and no doubt to claim to cure disease that is beyond hope. The formula is not kept secret for profit . . . but is so kept upon the advice of a number of good men who have the interest of the doctor at heart. . . . I am willing and anxious to place the product and the results in thousands of cases before the A. M. A. on the one condition that the formula shall be kept secret for the benefit of the reputable physician."

In another letter written more recently to a physician who called attention to the secrecy of the nostrum, Loffler wrote:

"The Intravenous Compound contains approximately 58 per cent. oxygen, 12 per cent. chlorine, 16 per cent. potassium, 9 per cent. sodium and 5 per cent. boron. I have no hesitancy in giving it, and it was due to an incompetent man in this office that this was not given fully in the booklet. He made the changes without my consent and has caused me to answer many inquiries by physicians."

A seeming frankness is a trick as old as nostrum exploitation itself. Loffler's "formula" is meaningless. A quack who was putting out a mixture of 1 part baking soda and 2 parts common salt might with equal frankness say that his marvelous combination contained approximately 35.4 per cent. sodium, 4.8 per cent. carbon, 19 per cent. oxygen, 40.4 per cent. chlorin, and 0.4 per cent. hydrogen.

In order that the profession might know more about this product a specimen was turned over to the A. M. A. Chemical Laboratory for analysis. Here is what the chemists report:

CHEMISTS' REPORT

"One original 2 ounce bottle of 'Intravenous Compound (Loffler) for Intravenous Use' was submitted to the Association's Chemical Laboratory for examination; according to the label the product is sold by the 'Intravenous Chemical Co., Chicago.' The bottle contained a white granular substance, which appeared as if the ingredients had been fused together. The product responded to tests for sodium, potassium, chlorate, borate and nitrate. As this same set of chemical radicals was found by Puckner and Hilpert (J. A. M. A., May 22, 1908, p. 1706) to be present in 'Oxychlorin' and 'Zyme-oid,' a quantitative comparison of "Intravenous Compound (Loffler)' was made.

"The analysis indicated that all three products are essentially the same:

	Oxychlorin Per Cent.	Zyme-Oid Per Cent.	Intravenous Compound Per Cent.
Potassium (K^+)	12.26	13.50	13.79
Sodium (Na^+)	8.20	9.84	9.82
Boric acid anhydride (B_2O_3)	18.63	13.42	15.20
Chlorate ($Cl\ O^-_3$)	25.52	27.53	26.44
Nitrate (NO^-_3)	21.70	24.22	23.75
Water calculated	13.29	10.42	11.72

"Assuming that the chlorate in 'Intravenous Compound (Loffler)' is present as potassium chlorate and the nitrate is present as sodium nitrate, the figures obtained by the analysis correspond to a mixture approximately as follows:

Potassium chlorate ($KClO_3$)	38.6 per cent.
Sodium nitrate ($NaNO_3$)	32.6 per cent.
Potassium borate ($K_2B_4O_7$)	4.9 per cent.
Sodium borate ($Na_2B_4O_7$)	4.0 per cent.
Boric acid	21.1 per cent.

"From the results of the examination it is concluded that this preparation is a mixture of alkali chlorate and nitrate and boric acid probably produced by fusing together the constituents. It is practically the same mixture as Oxychlorine and Zyme-oid as analyzed nearly fourteen years ago in the A. M. A. Chemical Laboratory."

Throughout the advertising of "Intravenous Compound (Loffler)" the physician is reminded of the financial returns that the product offers.

". . . The financial return will prove as interesting to yourself as results are to the patients."

"And lastly but not less interesting, the financial returns are commensurate with results."

". . . the instruction given me in the use of your Intravenous Compound and the opportunity presented adds four to five hundred dollars per month to my bank account."

". . . will not only give you more positive results than have ever obtained in chronic and progressive diseases but a very remunerative business."

"Intravenous Compound (Loffler) is supplied in granular form, 2 ounces to a bottle, at $2 per bottle. An ounce will average fifteen treatments and treatments are at from $3 to $5 each, according to the ability of the patient to pay."

A physician whose name the Intravenous Chemical Company had given as a user of Intravenous Compound (Loffler) was written to by another physician who was interested in the matter and he was asked frankly for his opinion. He replied in part:

"The treatment makes a profound impression on the recipient and is usually followed by a marked improvement mentally, and I have not been keen enough to draw the line of just how far the physical or material improvement went and when the psychical began.

"For the office 'specialist' of the advertising type this would be a boon, but I am not entirely satisfied that its use completely justifies its claims."

SUMMARY

Intravenous Compound (Loffler) stands revealed as a nostrum of secret composition which physicians are asked to inject into the veins of their patients. It must be purchased in connection with some supplementary material, "a complete set of apparatus," sold by the same concern. Its successful administration is said to depend on following a technic detailed either in a booklet sent out by Loffler or given by Loffler in a "Post-graduate Course" which costs physicians $50 unless they have purchased six dollars' worth of another nostrum, "Thymozene."

The intravenous administration of drugs is impressive. To the patient the technic is mysterious and its psychic effect striking. Its dangers—infection, air-embolism, intravascular clotting, sudden death—are matters of record. Every conservative physician will admit that there is no excuse for the intravenous administration of even those drugs that are well known and whose effects have been carefully studied, except when distinct advantages are to be secured. As THE JOURNAL has stated before, "little is known of the results to be expected from intravenous therapy even with simple substances."

What, then, can be said of the physician who subjects his patients to the intravenous injection—"at from $3 to $5 each, according to the ability of the patient to pay"—of a preparation of whose composition he is as ignorant as he must be of its effects? Intravenous Compound (Loffler) has been on the market ten years; it is unmentioned in the literature of scientific medicine. The name of its exploiter while not unknown in the twilight zone of professionalism as the exploiter of a nostrum, as a "Specialist" in "Chronic Troubles" and "Intravenous Therapy," as well as in other capacities even less savory, is equally unknown to scientific medicine.

Mens Sana in Corpore Sano.—Every one knows that a splendid physique can be attained by means of continued and regular exercise of the muscles; but few realize that the same law applies to the mind, and that mental poise may be attained by the proper exercise of the mental faculties.—R. R. Spencer, *Nation's Health* **3**:540 (Oct.) 1921.

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Correspondence

"PULMONARY ABSCESS IN ADULTS FOLLOWING TONSILLECTOMY UNDER GENERAL ANESTHESIA"

To the Editor:—In THE JOURNAL, Oct. 22, 1921, p. 1313, Drs. Lewis Fisher and A. J. Cohen have an article on "Pulmonary Abscess in Adults Following Tonsillectomy Under General Anesthesia." I have read this with great interest, partly because both in the body of the article and in the discussion, my name is mentioned several times, and partly because I expressed some views—apparently most unpopular news—on this subject in THE JOURNAL (April 3, 1920, p. 941). In referring to these views, Drs. Fisher and Cohen are responsible for the following paragraph:

Use of the Motor-Driven Ether Vaporizing Apparatus.—This, as a cause, can probably be dismissed with very little consideration.

It is not unlike the statement made by the wife of one of my colleagues, who, when suing him for divorce, alleged in the public press that she frequently saw her husband out driving, in a motor car, with a lady whose society he apparently preferred, and that, upon encountering his wife, he passed her by "with an airy wave of the hand."

Now, I happen, like the wife, to be one of those not meek persons who refuse to be convinced by a gesture. I am not, by any means, certain that Drs. Fisher and Cohen have proved, by their summary sentence, that the lady they are riding with is Truth. Perhaps she is Error.

But, passing that, and simply reading into the minutes a humble request to have the reasons why motor-driven apparatus can "probably be dismissed" patiently and carefully explained to me, I wish to call attention to a statement made in the discussion, which I think is fundamentally pernicious. Dr. A. A. Hayden of Chicago, on page 1317, states that "because a lung abscess develops after a tonsillectomy, it does not necessarily follow . . . that it is due to the operation." This is the sort of flattering unction that operators are constantly laying to their souls, and they should not be allowed to, let us say, get away with it. The primary thing for laryngologists to recognize is that the operation is certainly responsible for the lung abscess. If the patients did not have the operation, they would certainly not have the lung abscess. There are no "probabilities" or "not necessarilies" about it at all. If any one deliberately maintains that lung abscesses following tonsillectomies are not the result of the tonsillectomies, he either doesn't know anything about tonsillectomies, or else he doesn't know anything about lung abscesses. And no progress will be made in the prevention of these lung abscesses unless that fact is seriously and uncompromisingly faced.

Since the publication of my article I have had an opportunity of seeing twelve more of these cases. I have seen no reasons radically to alter my opinions. I take a somewhat more defensible position by saying that all the single abscesses are due to aspiration of infective material. Several factors may be responsible for such aspiration. Abolition of the swallowing reflex by ether, the position of the patient, pressure from in front by motor-driven apparatus, a prepared lung soil—all may play their part. The thing to avoid is the aspiration. Drs. Fisher and Cohen argue for an embolic origin. There are unquestionably embolic lung abscesses, but they are multiple. A case in point is that of a woman in my service at the Kansas City General Hospital last fall, who had had a tonsillectomy done, under local anesthesia in a doctor's office, and a few days later developed abscess in the cervical lymph nodes, multiple lung abscesses, double empyema of the pleural cavity, and femoral phlebitis. But that is not the usual clinical picture.

No one cause is operative exclusive of all others. But to deny the responsibility of the operation itself is to place oneself in the position of the surgeons of the preantiseptic era who contended that the operation did not cause the pus, but that it was a natural process of healing.

LOGAN CLENDENING, M.D., Kansas City, Mo.

POSTGRADUATE COURSE OF THE AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY

To the Editor:—The American Academy of Ophthalmology and Oto-Laryngology held its twenty-sixth annual session in Philadelphia, October 17 to 22. The first three days of the meeting were given over to the program of the regular annual session. Papers were read and discussed as usual. These were of the usual high order. Prof. J. Van der Hoeve, head of the department of ophthalmology of the University of Leyden, Holland, was the guest of honor, and as such addressed the academy.

The academy has in the neighborhood of 1,400 members. Seven hundred of these were in attendance. They came from all over the country and Canada. The Philippines sent one, as well as Honolulu.

The attention given the authors and the discussers of papers was noticeable in its intensity. The members in many instances held their seats continuously through entire sessions lasting three hours, morning and afternoon.

The outstanding feature of the session was the holding of a postgraduate course for the members, succeeding the annual session. This lasted three days. For this new feature 500 men registered and paid subscriptions.

The course opened Wednesday evening, October 19, by lectures, given by Professors Sachs of Washington University, St. Louis, and Prof. Van der Hoeve of Leyden. Every morning thereafter a joint session was held at the Academy of Natural Sciences, in which the borderlines of ophthalmology and otolaryngology were touched on. The afternoon sessions were section meetings, the section on ophthalmology meeting at the Academy of Natural Sciences and that on otolaryngology at the Medico-Chirurgical College.

The demonstrators were assembled from all over the country, some from university medical schools, some from independent medical schools and from no medical schools. The medical schools represented were: Leyden, Vienna (Professor Fuchs), Rush, Harvard, St. Louis, Colorado, Minnesota, Nebraska, Illinois, Pennsylvania, Michigan, Jefferson, Iowa, Columbia, Tulane, Cincinnati, Washington, the Post-Graduate, New York, Mayo Clinic, New York Eye and Ear Infirmary, Wills Eye Hospital, and Illinois Charitable Eye and Ear Infirmary; a faculty the like of which was never gathered together before for such a purpose.

The attention given the demonstrators was marked. To get the front seats, many went early. The most attentive students were the leaders of the academy and the demonstrators themselves. Prof. Van der Hoeve did not seem to miss a single word. Prof. Ernest Fuchs remarked: "You Americans have been coming to us to learn from us and now we have come to you to learn from you." Up to the last minute of the last sessions the attention and attendance did not languish. All seemed determined to hear the last word spoken.

Naturally, no such course or scheme of demonstrations could escape criticism. Some of it was rather caustic. I took particular pains to mingle freely with the registrants to listen to criticisms and to evoke them. The caustic criticisms

seem to come from the occasional attendants at the annual meetings and from those who seldom or never prepare and read papers or discuss the papers of others. Criticisms, constructive and commendatory, came from the regular attendants and from those who take enough interest in the welfare of the academy to prepare and read papers with becoming regularity. The latter were in the great majority, and regarded the scheme as a great success, urging its continuance indefinitely.

It proved to be a review, in part. But it was more than that. It proved to be a distinct inspiration, a thing we all need so much on the routine of our daily work.

George F. Keiper, M.D., La Fayette, Ind.

"MELLON ISSUES BEER REGULATIONS"

To the Editor:—I was very sorry to read your editorial (The Journal, Oct. 29, 1921, p. 1425) opposing the granting to the medical profession the right to write prescriptions for beer. I regret to see our supposedly most representative medical journal line itself up with our professional reformers and other fanatics. In doing so, it no longer represents the consensus of the medical profession, and in stating that every physician who writes a prescription for beer does so from ulterior motives and prostitutes his profession, the editor utters a damnable untruth.

If I have a patient with an asthenic condition, underweight, circulation sluggish, extremities cold, blood pressure low, who becomes easily fatigued, and if my experience tells me that such a patient can be converted into a normal healthy being, by taking one or two bottles of beer per day—and I have seen many such cases—no narrow-minded editor has a right to prevent me from practicing my profession according to the best dictates of my experience.

I prefer to take my medical instruction from such recognized leaders of the profession as Jacobi, Hare, and our eminent physiologic chemists Atwater and Benedict, all of whom know the value of alcohol as a readily assimilable food, and a reliever of fatigue, and our best protein sparer—rather than the ipse dixit of an editor who scathingly condemns all physicians that dare to differ from his own narrow views. I am sure that every red blooded American agrees with me. This is still a free country, in spite of the efforts of reformers to destroy its freedom, and our medical journals should be the spokesmen for true liberalism of thought, and not for hide-bound reactionary ideas. Are we to become a nation similar to the Turks, enervated, fanatical, nonproductive? Or, rather, shall we emulate the example of the countries that have revealed true progress in the history of civilization—the countries whose inhabitants with very few exceptions have been moderate drinkers?

The only unfortunate feature is the fact that it should be necessary for a person to go to a physician for an important remedy, as well as a true food, that should be as easy to obtain as milk, and is no more harmful; when he needs no prescription for truly harmful drugs, such as barbital, chloral, paregoric, bromo-seltzer, orangeine, antikamnia and midol, all of which have a large trail of deaths directly due to them.

Wake up Mr. Editor, and show a little broadness of mind.

Lucius Felix Herz, Ph.B., M.D., New York.

To the Editor:—"Self respecting physicians should and will resent" attempts to prostitute the medical profession by Congress in presuming, with the aid of the Anti-Saloon League, to dictate to the medical profession what drugs it shall use, and how it shall use them, in the treatment of disease.

How strong is your support among physicians in your astigmatism on the prohibition question? I believe you didn't receive any tremendous "vote of confidence" in the House of Delegates the last time the question came up, as I remember.

In your current editorial you really must have intended to use the word *travesty* in connection with the present day prohibition enforcement. Certainly it is hard to see how the fact that the Attorney-General obeys the law as it stands should be criticized.

Albert A. Rayle, M.D., Athens, Ga.

PREVENTION OF COCAIN INTOXICATION BY ETHYL ALCOHOL IN SURGERY

To the Editor:—Referring to the special article on "Anesthesia in Nose and Throat Work" (The Journal, Oct. 22, 1921, p. 1336), I should like to call attention to an article on the prevention of cocain intoxication in its hypodermic use in surgery, which I published in the *Zentralblatt für Chirurgie* (1913, No. 44, p. 1705). An abstract of this article in Merck's Annual Report, "On Recent Advances in Pharmaceutical Chemistry and Therapeutics" (**27**:159, 1913) reads: "An important contribution on local anesthesia has been published by A. Herzfeld. He states that alcohol is an excellent drug for preventing acute cocain intoxication, such as may occur particularly in females who exhibit an idiosyncrasy to cocain, alcohol being the physiologic antidote of cocain. The author gives to every patient without exception a large dose, 25 to 50 c.c., of whisky or brandy by mouth ten to thirty minutes before the first injection of cocain. To women and children it is given in sugar and water (liqueur). With this treatment he has never had a single unpleasant experience in the course of four years in inducing local anesthesia by cocain. Herzfeld's suggestion is worthy of trial, especially in dentistry."

I have been using ethyl alcohol in its various forms for the prevention of cocain intoxication for twelve years, and I have not seen a single case of cocain poisoning in using cocain hydrochlorid or in one of its derivatives as a local anesthetic in my practice. In long continued operations the dose of the alcoholic liquor may have to be repeated.

Alfred A. Herzfeld, M.D., New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ADMINISTRATION OF TOXIN-ANTITOXIN WHEN SCHICK TEST IS NEGATIVE

To the Editor:—When the Schick test for susceptibility to diphtheria is negative in a patient, is there any risk whatsoever in administering diphtheria toxin-antitoxin to the patient? I ask this because, after having applied the test to about one dozen children, I failed to get a single positive reaction. On this account I am somewhat afraid that the Schick test has not shown the susceptibility to diphtheria when it may have existed.

L. M——, Texas.

Answer.—There would be no more risk in administering diphtheria toxin-antitoxin to those giving a negative Schick reaction than to those giving a positive one. In persons who have a natural antitoxin immunity, as shown by a negative Schick test, a very decided increase in the amount of antitoxin follows injections of toxin-antitoxin (Park and Zingher: Reprint series, Dept. of Health of City of New York, 1916, No. 44, p. 11). Since, however, such persons are already immune, there is no need of subjecting them to the annoyance and possible discomfort of the injection.

The entire absence of positive reactions in about a dozen children leads to the suspicion that the toxin used was inactive.

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Zingher has published some observations on the reliability of the Schick test (THE JOURNAL, Nov. 13, 1920, p. 1333). He found several Schick test outfits furnished by commercial laboratories unreliable, and containing insufficient toxin to give positive reactions in Schick-positive children. It is not unlikely that toxin in small outfits may deteriorate after leaving the manufacturer, especially if exposed to much fluctuation in temperature. The potency is best preserved at low temperatures. The toxin should be stored in the cold, and during transportation it would be desirable to insure it against variation in temperature, especially elevation, by packing in specially insulated containers.

DANDRUFF

To the Editor:—Kindly suggest some effective treatment for seborrhea (dandruff), a local variety affecting the hairy scalp, in the form of thin, dry scales, which are firmly adherent to the surface. The skin beneath is normal. It appeared about ten months ago in several patches on the scalp of a girl, aged 10. At this time the disease has invaded the scalp uniformly; scales hang loosely on the hair now. The father of this child has suffered from the same disease since childhood, and the disease has invaded the eyebrows, mustache and beard, and follows a similar course to that of the scalp.

J. S. WEBSTER, M.D., Paradise Valley, Neb.

ANSWER.—The most effective remedies for dandruff are mercurial and sulphur preparations. A good ointment is

	Gm. or Cc.	
Salicylic acid	1.3 to 2	gr. xx-xxx
Ammoniated mercury	4	3i
Rose ointment to make.....	30	3i

or a similar ointment in which the ammoniated mercury is replaced by the same amount of precipitated sulphur. Either of these ointments should be rubbed into the scalp two or three times a week while the condition is bad. As it improves, the interval between applications may be made longer. After the condition is much improved, an application once a week may be sufficient. Even after the condition has apparently disappeared, the greasing with one of these salves once in two weeks may well be continued, for the trouble has a persistent tendency to recur. While these salves are being used frequently, the scalp should be shampooed about once a week. A good soap for this purpose is a tar soap.

For parts other than the scalp, either of the same salves can be used in much weaker strength. On nonhairy parts it should, however, be diluted say down to 25 or 30 per cent. of the strengths given above at the beginning of treatment.

The use of salves, such as the foregoing, furnishes the best means of treating dandruff, but because of their rather unpleasant qualities on the scalp, lotions are used in their place. Lotions containing mercuric chlorid, resorcinol and various other antiseptics are used. They are not effective in well developed cases of dandruff, and will not cure them. They are useful in holding cases in check, and, perhaps, in preventing recurrence.

FULTON'S DIABETIC COMPOUND

To the Editor:—Will you please write me personally or tell in the next issue of THE JOURNAL what John J. Fulton's Diabetic Compound No. 2 contains?

A. L. THOMAS, M.D., Ennis, Texas.

ANSWER.—The Fulton nostrums ("Fulton's Diabetic Compound" and "Fulton's Renal Compound") were dealt with at some length in the Propaganda department of THE JOURNAL, Jan. 29, 1916. In March, 1917, the federal authorities issued reports on both the diabetic compound and the renal compound. The government declared that the claims made for each product "were false, misleading and fraudulent in that no ingredient or ingredients in the product or compound were capable of producing the therapeutic effects claimed for it." THE JOURNAL'S original article on the nostrums and an abstract of the government's case against them appears in the pamphlet "Nostrums for Kidney Disease and Diabetes," price 15 cents.

ESTIVIN

To the Editor:—What is "Estevin," or something like that? It is said to be good in hay-fever.

CONSTANT READER.

ANSWER.—The product called "Estivin" is sold by Schieffelin and Company, New York. A request for a statement of the composition of this preparation sent to Schieffelin and Company by the Council on Pharmacy and Chemistry brought the indefinite and, therefore, meaningless statement that "'Estivin' is an extract of Rosa Gallica containing no alcoholic or foreign ingredients."

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

DELAWARE: Wilmington, Dec. 13. Sec., Reg. Bd., Dr. P. S. Downs, Dover; Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington St., Wilmington.

KENTUCKY: Louisville, Dec. 6. Sec., Dr. A. T. McCormack, 532 W. Main St., Louisville.

LOUISIANA: New Orleans, Dec. 1-3. Sec., Dr. Roy B. Harrison, 1551 Canal St., New Orleans.

MARYLAND: Baltimore, Dec. 13. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

NEBRASKA: Lincoln, Nov. 14-16. Sec., Mr. H. H. Antles, Capitol Bldg., Lincoln.

NORTH CAROLINA: Greensboro, Dec. 3. Sec., Dr. Kemp P. B. Bonner, Morehead City.

OHIO: Columbus, Dec. 7-9. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

TEXAS: Dallas, Nov. 22-24. Sec., Dr. F. J. Crowe, 918-919 Dallas County Bank Bldg., Dallas.

VIRGINIA: Richmond, Dec. 13-16. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

CLEVELAND'S HOSPITAL SUPPLY

A bulletin issued September 1 by the Cleveland Hospital Council states that Cleveland already has 3,500 beds and that 1,500 more are needed. This would make a total of 5,000 beds in a city having a population of 796,838, or one bed to every 160 people. This is based on the assumption that there should be five beds for every 1,000 people. Statistics published in the Hospital Number of THE JOURNAL (April 16, 1921) show that last year in the fifty largest cities of this country there was on the average one bed for every 185 people. A tabulation shows that in Cleveland altogether 46,192 patients were cared for in hospitals during 1920 and of this number 15,358 (25 per cent.) paid full fees, 24,854 (54 per cent.) were part-pay, and 9,983 (21 per cent.) were free. The total number of patients cared for at the City Hospital was 5,947 (60 per cent.) of the free cases, while 4,036 of the free patients, and all of the part-pay patients were cared for in private charitable hospitals. This, as shown in the report, is "an unequal division of the burden." It is stated that recent bond issues provide for an additional 700 beds and, in proportion to the patients cared for in 800 beds during the last year, the 1,500 beds in the City Hospital will care for over 11,000 patients. This still leaves all of the part-pay patients to be cared for in the private charitable hospitals. The other 800 beds required to bring the total hospital bed capacity of Cleveland to 5,000 beds reported as essential will need to be provided by private funds.

New Hampshire March Examination

Dr. Charles Duncan, secretary, New Hampshire State Board of Medical Examiners, reports the written examination held at Concord, March 10-11, 1921. The examination covered 11 subjects and included 80 questions. An average of 75 per cent. was required to pass. One candidate was examined and passed. Four candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Boston	(1916)	81

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
State University of Iowa College of Homeopathic Medicine	(1913)	Mass.
Medical School of Maine	(1894), (1910)	Maine
Medical Dept. of the University of the City of New York	(1890)	New York

Idaho April Examination

Mr. Paul Davis, director, Department of Law Enforcement, reports the written examination held at Boise, April 3, 1921. The examination covered 11 subjects and included 110 questions. An average of 75 per cent. was required to pass. Six candidates were examined, all of whom passed. Nine candidates were licensed by reciprocity. One candidate was

licensed by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University		(1902)	81.2
State University of Iowa College of Homeopathic Med.		(1913)	87.5
Kansas Medical College, Topeka	(1904) 80.3,	(1912)	84
Kansas City Medical College		(1892)	75.5
St. Louis University School of Medicine		(1920)	84.4

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado		(1920)	Colorado
Chicago College of Medicine and Surgery		(1917)	Wyoming
Rush Medical College		(1903)	Colorado
Saginaw Valley Medical College		(1899)	Washington
University of Michigan Medical School		(1895)	Colorado
John A. Creighton Medical College		(1913)	Montana
University of Oregon		(1897)	Oregon
Vanderbilt University		(1899)	Montana
Milwaukee Medical College		(1905)	Washington

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Rush Medical College		(1918)	Nat'l Bd. Med. Ex.

Iowa June Examination

Dr. Guilford H. Sumner, secretary, Iowa State Board of Medical Examiners, reports the written examination held at Iowa City, June 9-11, 1921. The examination covered 8 subjects and included 100 questions. An average of 75 per cent. was required to pass. Forty-six candidates were examined, all of whom passed. Eight candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University		(1921)*	90.4
Rush Medical College		(1921)*	90.2
State University of Iowa College of Medicine		(1921)	83.1, 83.5, 85.4, 85.5, 85.6, 86.2, 86.5, 87, 87.1, 87.4, 87.6, 87.6, 87.6, 87.7, 88, 88, 88.1, 88.1, 88.1, 88.4, 88.4, 88.5, 88.7, 88.7, 88.9, 89, 89.1, 89.1, 89.1, 89.2, 89.4, 89.4, 90.1, 90.1, 90.6, 90.7, 90.7, 91, 91.1, 91.4, 91.5, 91.5
Harvard University		(1920)	89.1
St. Louis University School of Medicine		(1921)	89

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery		(1914)	Illinois
College of Physicians and Surgeons, Chicago		(1895)	Minnesota
Hahnemann Medical College and Hosp. of Chicago		(1918)	Illinois
Jenner Medical College		(1909)	Illinois
Loyola University		(1917)	Wyoming
Rush Medical College		(1917)	Illinois
American Medical College		(1912)	Illinois
John A. Creighton Medical College		(1917)	Nebraska

* These candidates have finished the medical course and will obtain the M.D. degree after they have completed a year's internship in a hospital.

Oklahoma July Examination

Dr. J. M. Byrum, secretary, Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, July 12-13, 1921. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 25 candidates examined, 24 passed and 1 failed. Four candidates received duplicate licenses, 8 candidates were granted reregistration licenses, and 1 candidate's previous license was restored. Twelve candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery		(1908)	78
Northwestern University		(1919)*	78
Kansas City College of Medicine and Surgery		(1916)	87, 84, 85.5
St. Louis College of Physicians and Surgeons		(1921)	78
Washington University		(1921)	84, 85.5
University of Oklahoma		(1921)	76.5, 76.5, 77.5, 80, 80, 81, 81, 81, 81, 83, 84, 87, 87, 88, 90, 92.5
Western Reserve University		(1919)	83
FAILED			
University of West Tennessee		(1921)	55

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas		(1913)	Arkansas
Northwestern University		(1913)	Kansas
College of Physicians and Surgeons, Keokuk		(1888)	Colorado
University of Louisville Medical Department		(1903)	Kentucky
Washington University		(1919)	Missouri
Cincinnati College of Medicine and Surgery		(1902)	New Mexico
Western Reserve University		(1916)	Ohio
Memphis Hospital Medical College		(1902)	Arkansas
Sewanee Medical College		(1911)	Tennessee
University of Tennessee		(1895)	Texas
Fort Worth School of Medicine		(1900)	Texas
University of Texas		(1920)	Texas

* No grade given.

Miscellany

THOMAYER'S DISTRIBUTION OF THE PERCUSSION SOUND IN TUBERCULOUS PERITONITIS AND A SYMPTOM IN PERICARDIAL EFFUSION

Nearly forty years ago, Josef Thomayer (*Casop. lék. cesk.*, 1883) published his observations on a typical distribution of the percussion sound in tuberculous peritonitis and in some cases of carcinoma of the peritoneum: the dulness reaches far higher on the left side of the abdomen than on the right, irrespectively of the position the patient assumes. This is caused by the oblique course of the root of the mesentery, which pulls in, contracting the intestine in the same direction, as Thomayer pointed out and confirmed by postmortem findings.

Another sign found by the same author in patients suffering from a great pericardial effusion (*Casop. lék. cesk.*, 1913) is the suppression of the breathing murmur under the left clavicle with the patient in the horizontal position, the murmur returning immediately on resumption of the sitting posture. The pressure on the left bronchus caused by the falling back of the heavy pericardial sac accounts for the sign.

MEDICINE IN CHILE

Dr. Eduardo Moore[1] has compiled a complete list of physicians who have practiced in Chile in the four centuries (1520-1920) since the country was first discovered by Magalhães. About 2,000 (1,997) physicians practiced in Chile in that period. There are at present 969 practicing physicians besides seventy-six about to be licensed. As Chile has a population of about 5,000,000, this makes one physician for every 4,785 inhabitants. Twenty-three of the physicians are women. There are 856 students in the medical school, of whom fifty are women. The first physician to practice in Chile was Juan D. Morales, who was Magalhães' surgeon on the *Trinidad*, and who landed with his chief when the latter discovered the famous Strait, Nov. 1, 1520. He stayed on Chilean soil only twenty-seven days. The second physician to visit Chile came with Loaysa and Elcano's expedition in 1525, but his name has remained unknown. The third was E. Herrera de Hernando, who accompanied Almagro in his ill fated conquest trip in 1536 as far as Copiapó. Another physician, A. Marin, accompanied Almagro but did not get beyond the Aconcagua Valley. He remained twenty months in the country, asking 5,000 gold castellanos for his services. The first physician to settle in Santiago (the fifth to visit the country) was Castro, who arrived in 1552. He was for a while the only one in the country. In the next few years, more physicians arrived, among them F. Zavala de Estéban, Charles V's own physician, who came to take his grandchildren home. In 1566 the first protophysician had already been appointed, Alonso D. Villadiego, and examinations were regularly held for all those desiring to practice medicine. The first inoculations of smallpox virus were made by a monk, Pedro Manuel Chaparro, in 1772 with success. Jennerian vaccination was introduced by J. J. Grajales early in the nineteenth century, and vaccine virus by J. J. Garcia Quintana, about 1872. There was at least one hospital as early as 1580. A physician, Camilo Henriquez, founded, *La Aurora*, the first newspaper in Chile; and two French physicians, Daizion Lavayne and Gay, were the founders and first two directors of the national museum. Until recently, medicine was a cosmopolitan profession in Chile. British graduates have especially been numerous, several of them—Brink, Bleakley, Carpenter, Clarke, Davis, Douglas, Greene, Martin, Michael, McLaughlin, Sanders, Ward and Welsh—occupying the highest positions in the navy. In fact among the earliest physicians we find Winter, Drake's surgeon in his trip around the world in 1577, and Elliott, surgeon on the *Wager*, who was shipwrecked in 1640 on the island named after him and who died there later. Among the first four

1. Moore, Eduardo: Nomino de Medicos que Han Residido en Chile.

physicians graduated in Chile in 1842, one was named Mackenna. The course in medical instruction lasted ten years. American physicians seemed to have been rather scarce, the only names given being those of J. O. Cook, James W. Franklin, John Grady, W. R. Richardson, Frederick T. Shaw, S. Trumbull, R. Howard Tuttle and Olaf Page, who became surgeon general of the army. Medicine was taught for the first time in the University of San Felipe in 1756 by Domingo Nevin, a graduate of the medical school of Rheims, France. He was succeeded in 1773 by J. I. Zembrano, a graduate of the University of San Marcos of Lima. The first Chilean to graduate in medicine was J. A. Rios, in 1776, who later became the third professor of medicine.

Book Notices

THE CLINICAL STUDY AND TREATMENT OF SICK CHILDREN. By John Thomson, M.D., F.R.C.P., Consulting Physician to the Royal Edinburgh Hospital for Sick Children. Third edition. Cloth. Price, 32 shillings, 6 pence. Pp. 877, with 249 illustrations. Edinburgh: Oliver & Boyd, 1921.

This edition is said to have been largely rewritten, thus accounting for the larger size of the book. New chapters have been added on the food disorders, congenital malformations and derangements of the digestive tract, spasmophilia, acidosis and other subjects in which medical knowledge has advanced. The citations from the literature are numerous and well chosen, and contain many references to the work of American pediatricians. In the main, this is a textbook on clinical pediatrics for practitioners, and while the author believes that he has said little about pathology, his discussion of the etiology and pathogenesis of diseases, notably scurvy and rickets, is full and complete. Some of his opinions will doubtless give rise to dissent: in congenital stenosis of the pylorus he recognizes a "natural process of cure" which, while slow, is most effective, although in the acute cases the loss of weight and strength is so rapid that he thinks the risk of an operation is far less than that of prolonged medical treatment. The chapter on growth and development is good, especially that part dealing with the development of the sensory functions and their testing for clinical purposes. By observing closely changes from the normal in all the functions of the infant, much of value may be learned on which to base a diagnosis. Thomson devotes much space to this subject in the consideration of the infant's cry, how it nurses, sleeps, breathes, holds its hands and feet, and reacts to outside influence. Fifty pages are devoted to syphilis and tuberculosis. The chapter on therapeutics discusses many measures which unfortunately are not used as they should be, such as sponging, packs, douches, baths, fomentations, poultices, bleeding, the mechanical treatment of the stomach and intestines, the administration of medicines by mouth and hypodermically, and the local application of drugs. By no means the least valuable chapter is that at the end of the book in which many things are discussed, such as case taking; periods of incubation and infectiveness of contagious diseases; anaphylaxis; accessory food factors, or vitamins; technic for intravenous injections in infants, and directions to mothers with respect to paralyzed children and those who are mentally defective. Many formulas are given as well as recipes for the preparation of foods. The book is well illustrated and the index is very complete.

LIFE OF ELIE METCHNIKOFF, 1845-1916. By Olga Metchnikoff. Preface by Sir Ray Lankester, K.C.B., F.R.S. Cloth. Price, $5. Pp. 294, with 1 illustration. New York: Houghton Mifflin Company, 1921.

It has been the opinion of most literary critics that biographies of great men written by wives or by other near relatives are invariably unsatisfactory. Until now the exception that proved the rule was the life of Pasteur by his son-in-law, Valery-Radot. To this exception must now be added the present volume. Madame Metchnikoff has prepared a book which may well stand with the Pasteur volume. It was the wish of Metchnikoff that she write this biography, and he contributed extensively to it; repeatedly it partakes of the nature of autobiography. The literary style, revealing traces of the influence of such Russian masters as Turgeniev and Tolstoi, must be accredited wholly to Madame Metchnikoff and to the unnamed English translator.

The early steps in the career of the great biologist are traced with broad strokes revealing much without the intimate detail that makes dry and monotonous reading. We learn of the introspective character of the man, of his nervous temperament and of his innate pessimism. These features of his character caused him twice to attempt suicide before the age of 35. His enthusiasm for science was the vital feature of his life. When he found himself in the environment of Russia before the revolution, a country with small regard for science and with little encouragement for research, his spirit and aspirations were repeatedly thwarted. He sought an outlet in Germany, where he was received coldly. Eventually he reached France, and there at last found the sanctuary which he had long sought.

He was not only a biologist and naturalist but also a philosopher of extraordinary depth. As represented by Madame Metchnikoff, he was a man with an ideal. To him the doctrine of phagocytosis was a creed to be fought for and defended to the bitter end. The story of his many battles makes the recital of his scientific work as intense as a piece of fiction.

In his second attempt at suicide, when young, Professor Metchnikoff had inoculated himself with relapsing fever. He recovered, but the effects on the myocardium were such as to give him serious difficulty throughout the remainder of his life. Becoming imbued later with the idea that the intestinal flora with the toxins produced in the large bowel were primarily responsible for senile changes, he evolved the plan of changing this flora through the implantation of opposing organisms. The newspaper notoriety following this work was so great as to make him best known to the public for this rather than for his many greater and more scientific contributions to medical science. The development of all these discoveries is carefully traced in the book.

Passing the age of 50, Professor Metchnikoff, studying his own mind, realized that he was now imbued with the desire to prolong life whereas he had formerly sought only for an early end as the greatest desire of mankind. As his last illness developed, he began to write down from day to day the feelings which came over him. This diary occupies a score of pages, and is easily comparable to the text of "Barbellion's Last Diary," presented last year with an introduction by H. G. Wells as one of the literary sensations of 1920. This biography may be read by every physician with great interest: it is intimate, instructive and fascinating.

A DICTIONARY OF SLANG AND COLLOQUIAL ENGLISH. Abridged from the seven-volume work entitled, Slang and Its Analogues. By John S. Farmer and W. E. Henley. Half morocco. Price, $5 net. Pp. 534. New York: E. P. Dutton & Co., 1921.

The publishers have here abridged into one volume the seven volume work of Farmer and Henley on the same subject by eliminating obscene words and by omitting the quotations showing the varying usages of the words included in literature. In the growth of slang, medical words have a prominent place because the public is inclined to use simple locutions for the technical diction of the sciences. Furthermore, the slang term is frequently far more descriptive than is the correct one, and in many instances it has an added historical value. Examples of words included in this volume which are of medical interest are: "Adam's Apple" for the "thyroid cartilage," first introduced in 1586; "bloat," a term used to describe a drowned body or a drunkard; "blue boy" for "bubo," obviously an ignorant derivation; "blue devils" for dejection or hyperchondria, first used in 1786, and for delirium tremens (1818) and gradually modified to our modern "blues"—not the dancing variety; "bone-ache" for syphilis, 1592; "boneyard" for cemetery, 1836; "nolimetangere" for scabies, 1626, and "Scotch grays" for "pediculi." The words contained in this volume are chiefly English, with a slight sprinkling of old American terms. It is safe to say that a dictionary of modern American slang would far exceed in size this English one. The growth of language recapitulates the growth of the race, and the history of new terms is an interesting study.

Medicolegal

Power to Quarantine, but Jail Not Proper Place

(Dowling, Health Officer, v. Harden (Ala.), 88 So. R. 217)

The Court of Appeals of Alabama says that the right of the legislature, under the police power, to establish quarantine to prevent the spread of contagion and infection is too well established by adjudication and grounded in common sense to be questioned or doubted, and governmental agencies, when authorized, may enact and enforce all reasonable ordinances necessary to attain the desired results. To that end, persons affected or reasonably suspected of being affected with diseases known to be infectious or contagious may be segregated or isolated from the public, either in their homes or in hospitals or camps prepared for that purpose, until such time as they will cease to be a menace to the public, and prisoners under legal charges of crime may be, when so affected, segregated from their fellows. When so quarantined, they are subject to such reasonable examination as is necessary to satisfy the health authorities that their release will not endanger the public. But persons affected with disease are not for that reason criminals, and jails and penitentiaries are not made or designated for their detention. Section 17, Subdivision 15, of the Act of 1919, authorizes quarantine or isolation, but not imprisonment, and the Act of Oct. 12, 1903, provides for detention in a hospital established for that purpose, and even when parties are in prison, charged with crime, the provision, by Section 17, Subdivision 16, of the Act of 1919, is for the establishment of a hospital or clinic, that parties so infected may be treated.

The petitioner in this case, who sought by habeas corpus proceedings to secure her discharge from quarantine in which she was detained by the health officer of the city of Birmingham, had been arrested on a charge of vagrancy. She gave bond for her appearance and the case was continued. She was presumed to be innocent of the criminal charge against her, and as she had given bond, the court was not authorized to order her further imprisonment. However, the health officer, under the facts, was authorized to consider the petitioner within the class of those reasonably suspected of being sources of infection, as provided by Section 17, Subdivision 15, of the Act of 1919, and to be dealt with as provided by that section of the act and the Act of 1903. But neither the one nor the other authorized the health officer to confine or order the petitioner's confinement in jail. Such confinement would be illegal. But, under the agreed statement of facts, which must govern here, the petitioner "was detained by Dr. J. D. Dowling, as health officer of the city of Birmingham and county of Jefferson, as being reasonably suspected," etc. It nowhere appeared that the health officer confined the petitioner in jail. Nothing to the contrary appearing, this court must presume that she was being detained in one of the places provided by law. If such was not the case, the judge before whom the case was heard could make the proper order. For these reasons, the court reverses a judgment that ordered the discharge of the petitioner.

Hints Regarding Expert Testimony—Duty of Surgeon

(Lehman v. Knott (Ore.), 196 Pac. R. 476)

The Supreme Court of Oregon, in reversing a judgment for $750 damages that was rendered in favor of the plaintiff, says that the gist of the complaint was that the defendant failed to exercise the requisite knowledge and skill in the treatment of a fracure of the plaintiff's left wrist. Objections were made to portions of the expert testimony. As an expert is not allowed to draw inferences or conclusions of fact from the evidence, his opinion should be exact on a hypothetic statement of fact. It is the privilege of counsel to assume any state of facts which there is any testimony tending to prove, and to have the opinion of the expert based on the facts assumed. But the testimony should tend to establish the facts embraced in the question. If the hypothetic question is clearly exaggerated and unwarranted by any testimony in the case, an objection to it should be sustained. The form of the hypothetic question, whether it states facts, or puts facts hypothetically, or refers to the testimony of witnesses as being true, should be shaped so as to give the witness no occasion or opportunity to decide on the evidence. Hypothetic questions are clearly improper if they directly seek the opinion of the witness on the merits of the case. In a malpractice case the question whether a physician has in a given case adopted the proper treatment is one in which the opinions of medical men may be received in evidence, and they may state whether in their opinion the treatment was proper or not, whether it was in conformity with the rules and practice of the profession. As the opinion evidence rule is intended to provide against the danger of invasion of the province of the jury, a court should, as far as possible, exclude the inference, conclusion or judgment of a witness as to the ultimate fact in issue, even though the circumstances presented are such as might warrant a relaxation of the rule excluding opinions but for this circumstance. But the rule is not absolute, for it frequently occurs that the only possible or practicable method of making proof of the fact in issue is by means of opinion evidence.

It was error to allow the plaintiff to ask a medical witness whether the application of side splints was "unskilful and negligent." The distinction between improper treatment and negligent treatment is not as broad as it is vital. Improper treatment by a surgeon might be due to an error in judgment of a skilful surgeon honestly and carefully exercised, and not constitute negligent treatment. It would seem that, in order for the opinion of the experts to be of any assistance to the jury, the condition in which the splints were applied to the arm should have been described. If the splints practically encircled the wrist, the court fails to see that it would be very material whether they were termed side splints, or anterior and posterior splints. Moreover, while the place where the defendant practiced and treated the plaintiff was mentioned, the practice about which the experts were interrogated was in no way confined to the practice in similar localities. The fact that a witness who was skilled in medicine and surgery had never treated a case like the one in question would not disqualify him from giving his opinion. The objection would go only to the weight of his testimony.

A part of the instruction to the jury was that it is the duty of a surgeon in cases of this kind to use reasonable care and diligence, first in undertaking to reduce the fracture and to place the bones in apposition; second, in using proper appliances in a proper manner, by the means within his command, and as a prudent and careful surgeon, situated in like circumstances, under like conditions and in similar localities would do; and, unless he does these things, he lays himself liable for ensuing damages that may result from such want of skill and improper treatment and care. The instruction was not objectionable, except as to the reference to the "want of skill." It was not alleged in the complaint that the defendant did not possess the requisite knowledge and skill to treat the plaintiff; and perhaps what the court said of another instruction that referred to lack of knowledge by the defendant was applicable here, namely, that the instruction added to the issues, and might lead the jury outside the case and to consider the qualifications of the defendant.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, New Haven, Conn., Dec. 28-30.
American Physiological Society, New Haven, Conn., Dec. 28-30.
American Public Health Association, New York, Nov. 14-18.
Am. Soc. for Pharm. and Exper. Therap., New Haven, Conn., Dec. 28-30.
American Society of Tropical Medicine, Hot Springs, Ark., Nov. 14-15.
Hawaii, Medical Society of, Honolulu, Nov. 21.
Porto Rico, Medical Association of, San Juan, Dec. 10-11.
Radiological Society of North America, Chicago, Dec. 7-9.
Society of American Bacteriologists, Philadelphia, Dec. 27-29
Southern Gastro-Enterological Association, Hot Springs, Ark., Nov. 14-17.
Southern Medical Association, Hot Springs, Ark., Nov. 14-17.
Southern Surgical Association, Pinehurst, N. C., Dec. 13-15.
Tri-State District Medical Society, Milwaukee, Wis., Nov. 14-17.
Western Surgical Association, St. Louis, Dec. 9-10.

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1921

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

Sept. 15, 1921, **29**, No. 3

*Absorption from Ventricles in Experimentally Produced Internal Hydrocephalus. G. B. Wislocki and T. J. Putnam, Boston.—p. 313.

Various Types of Amitosis in Bone Cells. T. H. Bast, Madison, Wis. —p. 321.

Dynamics of Histogenesis. Tension of Differential Growth as a Stimulus to Myogenesis. VII. Experimental Transformation of Smooth Bladder Muscle of Dog, Histologically into Cross-Striated Muscle and Physiologically into an Organ Manifesting Rhythmicality. E. J. Carey, Milwaukee.—p. 341.

Comparative Histology of Enamel Organ of Mammalian Tooth, with Special Reference to Its Blood Supply. H. E. Jordan, Charlottesville, Va.—p. 379.

Absorption from Ventricles in Experimental Hydrocephalus.—Hydrocephalus was produced by Wislocki and Putnam in a number of kittens and young rabbits by injecting a suspension of lampblack into the cisterna cerebellomedullaris. Subsequently a readily diffusible solution or a colloidal dye was injected into the dilated ventricles. The experiments show that absorption occurs to some extent from the ventricles in hydrocephalic animals and that the pathway of escape is through the ependyma into the intercellular spaces and finally into the perivascular spaces. The rate of diffusion of a true solution (potassium ferrocyanid and iron ammonium citrate) from the cerebral chambers into the brain substance is fairly rapid, but that of a colloidal suspension (trypan blue) is somewhat slower. No observations on the rapidity of absorption of the foreign substances into the cerebral capillaries were made. No evidence of absorption by the choroid plexuses was obtained.

American Journal of Diseases of Children, Chicago

September, 1921, **22**, No. 3

*Demonstration of Food Proteins in Human Breast Milk by Anaphylactic Experiments on Guinea-Pigs. Their Probable Relationship to Certain Diseases of Nursing Infant. W. R. Shannon, St. Paul.—p. 223.

*Nutritional Keratomalacia in Infants. With Report of Four Cases. S. G. Ross, Baltimore.—p. 232.

*Medullary Malignancies of Suprarenal Gland, with Report of Cases. W. E. Carter, San Francisco.—p. 244.

Size and Weight in One Hundred and Thirty-Six Boarding School Boys (Groton). H. Gray, Boston, and W. J. Jacomb, Groton, Mass.—p. 259.

Ideal Tables for Size and Weight of Private School Boys. H. Gray, Boston.—p. 272.

*Bacteriologic Study of Fecal Flora of Infants and Children (Lack of Association of Nutritional Disorders with a So-Called "Putrefactive" Intestinal Flora). W. C. Davison and L. V. Rosenthal, Baltimore. —p. 284.

*Congenital Heart Block. P. D. White and R. S. Euster, Boston and W. J. Kerr, San Francisco.—p. 299.

Peritonitis as Complication of Scarlet Fever. E. C. Dunham, New Haven, Conn.—p. 307.

Review of Literature for 1920 on Neurology of Children. L. J. Pollock, Chicago.—p. 310.

Food Proteins in Breast Milk.—It is established by Shannon that egg protein may be present in the breast milk after the ingestion of a moderate quantity of egg at least by some nursing mothers. It demonstrated as conclusively as possible under the conditions of the experiments that it may cause disturbances in the nursing infant under these conditions. It is deemed probable that this may occur with almost any other food that the mother may eat. It is contended that we must revise our ideas as regards the diet of the nursing mother and must study our cases of food disturbances in the nursing infant from the standpoint of what the mother is eating.

Nutritional Keratomalacia.—Ross describes a general nutritional disturbance which is accompanied by a keratomalacia which may be classified separately from the eye lesions occurring in certain infectious diseases and from other causes. This type of dietary malnutrition frequently corresponds closely with the condition first described by Czerny as "mehlnährschaden." Clinically and histologically the keratomalacia is very similar to the eye lesions produced experimentally in rats by a diet lacking in the fat soluble A factor. The weight of evidence would tend to show that the cases occurring in human beings have also resulted from a lack of the same factor. If so, this "nutritional keratomalacia" in infants is the manifestation of a definite "deficiency disease" in the sense in which we now understand the term. Four cases are reported.

Suprarenal Medullary Malignancy.—Carter claims that suprarenal medullary malignancy is not an unusual occurrence. He cites three cases. In the majority of cases an orbital hemorrhage is the first sign observed, and it may occur before any tumor is palpable. The orbit first involved is often on the same side as the primary tumor. Diagnosis is not difficult once the orbital hemorrhage has occurred; the disease is likely to be mistaken only for trauma, chloroma and scurvy. Surgical interference can be of no avail, except as a palliative to drain a pyonephrosis or to meet other complications, as the metastases usually occur before a diagnosis can be made. Metastases probably occur via the lymph stream. The malignancy rarely may metastasize to the skin. The medulla of the suprarenal gland being neuro-ectodermic in origin, these malignant tumors are similar in their histologic structure to malignant neoplasms of the sympathetic nervous system and they are correctly designated as neuroblastoma.

Fecal Flora of Infants.—The so-called "putrefactive" and "fermentative" types of stool flora Davison and Rosenthal occur too frequently in normal children to be of diagnostic or therapeutic significance in patients with nutritional disorders. The influence of diet on the incidence of a "putrefactive" flora is not striking.

Congenital Heart Block.—An unique case of congenital heart block is recorded by White, Euster and Kerr in which the irregular pulse was observed before birth. This case also showed mongolian idiocy. A second case of probable congenital heart block is also reported. These two patients, with two other cases found in the literature, are tabulated with eight cases already recorded, making a total of eleven individuals with congenital heart block proved by graphic records, and one probable case also proved by electrocardiogram.

American Journal of Ophthalmology, Chicago

October, 1921, **4**, No. 10

Papilloma of Cornea. E. F. Garraghan, Chicago.—p. 717.

Atypical Circinate Retinitis. F. Yano, Nagoya, Japan.—p. 719.

Chronic Chorioditis with Liquid Vitreous and Bilateral Cataract; Operation; Good Result. F. Allport, Chicago.—p. 722.

Keratitis Caused by Excessive Sugar Ingestion. A. C. Macleish, Los Angeles.—p. 724.

Repeated Operations for Glaucoma. Report of Case. O. Dodd, Evanston, Ill.—p. 727.

Three Cases of Word Blindness. E. M. Alger, New York.—p. 731.

Ocular Changes in Infantile Scurvy. E. M. Blake, New Haven, Conn. —p. 736.

Foreign Body Spud Illuminator. W. H. Lowell, Boston.—p. 739.

New Test Card. J. M. Thorington, Philadelphia.—p. 740.

Tubercular Iritis. L. M. Carvill, Boston.—p. 742.

Carcinoma of Caruncle. G. M. Duckworth, Cuero, Tex.—p. 743.

Syphilitic Retinal Disease. F. B. Harding, Allentown, Pa.—p. 744.

Chronic Simple Glaucoma. Iridotasis. W. F. Holzer, Worcester, Mass. —p. 746.

Enucleation; Fat Implantation. W. W. Lewis, St. Paul.—p. 747.

Refractive Error with Folliculosis Simulating Trachoma. T. E. Oertel, Augusta, Ga.—p. 748.

Malignant Growth of Left Eyeball, Probably Sarcoma of Cornea. T. E. Perry, Bluefield, W. Va.—p. 748.

Neoplasm or Cyst of Hypophysis Cerebri. M. Ravdin, Evansville, Ind. —p. 750.

Visit to Dr. J. Kumoto of Tokyo. H. J. Howard, Peking, China.—p. 752.

American Review of Tuberculosis, Baltimore

October, 1921, **5**, No. 8

Small Pneumothorax in Tuberculosis. N. Barlow and J. C. Thompson. —p. 611.

*Effect of Artificial Pneumothorax on Collateral Lung. S. Simon, Denver.—p. 620.

*Effect of Nitrous Oxid, Natural Gas and Formaldehyd on Experimental Tuberculosis. J. B. Rogers, Cincinnati.—p. 637.

*Studies with Morphin in Experimental Tuberculosis. H. J. Corper, H. Gauss and O. B. Rensch, Denver.—p. 643.

*Value of Flavine Compounds in Experimental Tuberculosis. S. A. Petroff, New York.—p. 656.

*New and Easy Method for Demonstration of Granules in Tubercle Bacilli. J. Kieffer, Norwich, Conn.—p. 662.

*Case of Tuberculoma of Left Frontal Lobe of Brain. B. M. Randolph, Washington, D. C.—p. 665.

*Tuberculosis of Husband and Wife. Report of 150 Cases. H. L. Barnes, Wallum Lake, R. I.—p. 670.

Malnutrition and Its Relation to Tuberculosis. H. D. Chadwick, Westfield, Mass.—p. 674.
Tuberculosis in Discharged Service Men. M. J. Breuer, Lincoln, Neb. —p. 678.

Effect of Artificial Pneumothorax on Collapsed Lung.—One point made by Simon is that bilateral tuberculous involvement alone does not necessarily contraindicate the use of artificial pneumothorax.

Effect of Gases on Experimental Tuberculosis.—Neither repeated nitrous oxid and oxygen anesthesia, nor formaldehyd nor natural gas influence the development or progress of the tubercle in guinea-pigs infected through the respiratory route with a watery solution of tubercle bacilli positive sputum.

Action of Morphin in Tuberculosis.—This study is concerned with the action of morphin on the tubercle bacillus and on experimental tuberculosis in the guinea-pig. Morphin, even in saturated solution, is not tuberculocidal for short intervals up to three days, whereas it does exercise a distinct inhibitory action on the growth of the bacilli. The results indicate that morphin sulphate, in amounts as small as 1 mg. incorporated in 10 c.c. of glycerol agar, completely inhibits the growth of human tubercle bacilli during the first month of incubation (morphin diluted to 1:10,000); and that during the second month growth occurs in the 4 mg. concentration, whereas after three months it occurs in 16 mg. concentration. Above 16 mg. (morphin diluted to 1:625) there appears to be complete inhibition of growth. In experimental tuberculosis in the guinea-pig, small amounts of morphin sulphate (8 mg.), administered daily before and during the early part of the infection, have a slight inhibitory effect upon the development of the tuberculosis in these animals, while prolonged treatment exceeding five weeks after infection has little or no effect.

Value of Flavine Compounds in Tuberculosis.—Petroff found that acriflavine and proflavine (American preparations) have inhibitory properties on the development of tubercle bacilli when these dyes are used in culture mediums. In the former this property is in a dilution of 1:50,000, and in the latter, 1:25,000. The dyes as therapeutic agents in experimental tuberculosis are of no value, but have a tendency to accelerate the progress of the disease. All controls outlived the treated animals.

Demonstrating Granules in Tubercle Bacillus.—Kieffer makes use of the three solutions beside the counter stain, the use of which is optional: (1) the staining reagent, a carbolfuchsin-violet solution; (2) the fixing solution, concentrated Lugol's solution, and (3) the decolorizing solution, an acid, alcohol, acetone mixture.

Numerous Convulsions in Case of Brain Tuberculoma.—In the course of forty-eight hours Randolph's patient had 278 convulsions which were counted.

Tuberculosis of Husband and Wife.—The histories of 229 consecutive widowed patients admitted to the Rhode Island State Sanatorium, 1905 to 1921, show that ninety-three, or 40 per cent., lost their consorts by death from tuberculosis, a tuberculosis mortality over three times that of the married people of the community.

Boston Medical and Surgical Journal

Oct. 27, 1921, **185**, No. 17

*Surgical Abdomen in Children; Its Diagnosis and Prognosis. T. H. Lanman, Boston.—p. 489.
Consciousness in Epileptic Fit. L. P. Clark, New York.—p. 494.
Premature Rupture of Amniotic Membranes. A. T. Moulton, Boston. —p. 497.
*Cancer of Prostate. A. L. Chute, Boston.—p. 500.

Surgical Mortality in Children.—Lanman analyzes 4,748 cases from the surgical service of the Children's Hospital. The total mortality was 7.6 per cent. Among 738 abdominal cases the total mortality was 19.2 per cent. The mortality among various conditions was: umbilical sepsis, 51 per cent.; imperforate anus, 18 per cent.; other malformations, 100 per cent.; pyloric stenosis, 9.9 per cent.; intussusception, 41 per cent.; intestinal obstruction—other causes, 50 per cent.; appendicitis, acute, 9 per cent.; acute with abscess, 9 per cent.; acute with generalized peritonitis, 33 per cent.; generalized peritonitis, pneumococcus, 83 per cent.; other organisms, 70 per cent.; tuberculosis, 34 per cent.; other abdominal conditions, 45 per cent.

Cancer of Prostate.—In all instances where a malignant prostate is producing obstruction to urination Chute says it should be removed unless the patient's general condition is such as absolutely to preclude this. In the cases in which patients complain of pain in the thighs or sacrum, the perineal removal of the growth will give temporary relief in some cases. Operation in carcinoma of the prostate should be carried out by the perineal route and radium should be left in any bits of suspicious tissues that remain, or in the cavity from which the prostate tissue has been removed. The removal of these growths may be carried out with relatively little risk when done by the perineal route; that there is little probability of a permanent fistula.

California State Journal of Medicine, San Francisco

October, 1921, **19**, No. 10

*Acute Mechanical Obstruction of Small Intestine. S. Robinson, Santa Barbara.—p. 389.
Uncomplicated Fractures of Pelvic Ring. H. Brunn and L. D. Prince, San Francisco.—p. 392.
Incidence and Clinical Significance of Flagellate Infection in Certain Chronic Diseases. J. V. Barrow, Los Angeles.—p. 395.
Etiology of Parenchymatous Nephritis. G. E. Ebright.—p. 401.
California's Cancer Problem. A. R. Kilgore, San Francisco.—p. 403.
Chronic Lesions of Lower Lip. E. I. Bartlett, San Francisco.—p. 404.
Motais Operation for Ptosis Report of Six Operations. R. O'Connor, Oakland.—p. 409.
Prenatal Care. G. C. H. McPheeters, Fresno.—p. 411.
Great Second Type of Chronic Arthritis. L. W. Ely, San Francisco.—p. 415.

Acute Mechanical Obstruction of Intestine.—The persistently high mortality in the surgery of acute mechanical obstruction of the small intestine in Robinson's opinion is due in part to delayed diagnosis, but more particularly to errors in judgment as to the proper surgical technic to employ in a given case. This error consists primarily in an overenthusiasm for radical measures, such as resections and anastomoses, and an unjustifiable reluctance to employ ileostomy alone. Four cases are cited.

Colorado Medicine, Denver

October, 1921, **18**, No. 10

Doctor and Commonwealth. H. A. Smith, Delta.—p. 213.
Some Problems Connected with Tonsillectomy in Tuberculous. R. Levy, Denver.—p. 216.
*Tuberculosis of Gums. M. R. Stratton, Denver.—p. 219.
Treatment of Uterine Fibroids; Based on a Series of Five Hundred Cases. R. T. Frank, Denver.—p. 221.

Tuberculosis of Gums.—Stratton cites the case of a man, aged 36, who, following an attack of influenza developed pulmonary tuberculosis, extensive tubercular involvement of the larynx and epiglottis, and tuberculosis of the gums. The largest area was along the lower jaw on the right side and extended anteriorly to nearly the center of the jaw. Scrapings of the area contained tubercle bacilli and were entirely negative for any organisms found in Vincent's angina.

Delaware State Medical Journal, Wilmington

July-August-September, 1921, **12**, No. 3

Sheppard-Towner Bill. C. R. Layton.—p. 20.

Illinois Medical Journal, Oak Park

October, 1921, **40**, No. 4

Early Neurologic Findings in Primary Anemia. F. G. Norbury, Jacksonville.—p. 273.
Paternalism Destroys Self Reliance. State Medicine A Menace to People. W. D. Chapman, Silvis.—p. 278.
Difficult Cases in Bronchoscopy and Esophagoscopy. E. McGinnis, Chicago.—p. 282.
Foot Problems. E. B. Ball, Quincy.—p. 284.
Postoperative Pulmonary Complications. F. A. Norris, Jacksonville.—p. 288.
Lipoma of Kidney. J. W. Alexander, Charleston.—p. 289.
County Secretary As Viewed by County Secretary. E. B. Ball, Quincy. —p. 292.
County Secretary as Viewed by County President. F. A. Norris, Jacksonville.—p. 294.
County Secretary as Viewed by County Secretary. T. D. Doan, Scottville.—p. 295.
County Secretary as Viewed by Member. C. U. Collins, Peoria.—p. 296.
County Secretary as Viewed by Members. M. Herschleder, Mt. Olive. —p. 298.
What Secretary of County Medical Society Thinks of Members. W. E. Shastid, Pittsfield.—p. 299.
County Secretary as Viewed by Members. F. A. Renner, Lebanon.—p. 299.

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Cystitis: Its Cause and What to Do with It. J. A. Jerger, Chicago.—p. 300.
County Secretary as Viewed by County Secretary. C. S. Ambrose, Waukegan.—p. 305.
New Viewpoints in Feeding and Nutrition of Infants and Children. A. H. Byfield, Iowa City.—p. 306.
Hyperchlorhydria. M. M. Null, Seattle.—p. 314.
Treatment of Complete Prolapse of Rectum in Adults. C. J. Drueck, Chicago.—p. 316.
Occupational Treatment in Mental Disorder. C. F. Read, Chicago.—p. 318.
Obturator Hernia. L. F. Watson, Chicago.—p. 322.
Treatment of Cervicitis and Endocervicitis with Bismuth Paste Injections. A. R. Hollender, Chicago.—p. 323.
Indications for Surgical Treatment of Fibroid Tumors of Uterus. E. B. Montgomery, Quincy.—p. 325.

Kansas Medical Society Journal, Topeka

October, 1921, **21**, No. 10

Anesthesia and Analgesia in Obstetrics. J. D. Clark, Wichita.—p. 313.
Inversion of Uterus. J. W. Faust, Kansas City.—p. 317.
Present Day Obstetrics. C. D. McKeown, Hutchinson.—p. 320.
Placenta Previa. E. A. Reeves, Kansas City.—p. 323.
Tribute to Doctor Weston Howard McConnell. F. M. Wiley, Fredonia.—p. 329.

Medical Record, New York

Oct. 29, 1921, **100**, No. 18

*Transfusion in Infants with Malnutrition. Use of Superior Longitudinal Sinus. S. B. Burk and L. Fischer, New York.—p. 751.
Emphysiology: Elasticity: Dynamics of Splint. D. H. Stewart, New York.—p. 759.
Electrobiography. A. Abrams, San Francisco.—p. 761.
Plea for Rubber Catheter. M. Thorek, Chicago.—p. 762.
Radium and Research—A Protest. C. E. Field, New York.—p. 764.
Diathermy in Treatment of Tuberculous Kidneys. C. T. Stone, Brooklyn.—p. 765.
Medical Aspects of Workmen's Compensation. Public Health Committee, New York.—p. 766.

Transfusion in Infants with Malnutrition. — Fourteen citrated blood transfusions into the superior longitudinal sinus were performed by Burk and Fischer on ten infants. The ages ranged from 9 days to 6 months. Seven were under 2 months of age. The amount of blood injected averaged about 1 ounce. The time of injection averaged about ninety seconds. Four injections were followed by severe reactions; seven by moderately severe reactions, and three by slight reactions. The severe reactions consisted of a short period of dyspnea which lasted from twenty-five to forty seconds. A child who oftentimes cries lustily when the procedure is begun becomes suddenly quiet. Cyanosis of the face and pallor about the mouth appears about this time together with lateral and vertical nystagmus. The radial pulse remains unchanged. The child soon thereafter again becomes noisy and restless. The period of quietude lasts a few minutes. A 0.3 per cent. citrated solution was used without any harmful effects. This amount of sodium citrate facilitated the passage of the mixture through the small caliber of the needle with greater ease than with the 0.2 or 0.25 per cent. solutions. In four patients there was a marked improvement following transfusion; in six patients there was a slight improvement, and in two there was no improvement. Feeding should be delayed for at least one hour after transfusion. Children fed before this time elapsed vomited. The authors assert that transfusion of blood is valuable in the treatment of malnutrition and of the cachexias following the acute infectious diseases. Transfusion of blood improves the general condition of patients with gastro-intestinal disturbances who do not improve with formula feedings or with the use of mothers' milk. This is particularly noticeable when marked dehydration is present following failures after the use of hypodermoclysis, rectal instillations and venous infusions. Transfusion improves the prognosis in premature infants.

Michigan State Medical Society Journal, Grand Rapids

October, 1921, **20**, No. 10

Clinical Aspects of Blood Pressure. J. A. MacGregor, London, Ont.—p. 371.
Fractures of Lower Third of Tibia and Fibula. A. D. Laferte, Detroit.—p. 374.
*Some Effects of High Protein in Nephritis. T. L. Squier, Battle Creek.—p. 378.
*Typical Case of Botulism and Its Specific Therapy. M. Wells, Grand Rapids.—p. 381.
*Botulism. B. N. Colver, Battle Creek.—p. 385.
Diagnosis and Treatment of Certain Diseases and Traumatisms of Esophagus. T. Hubbard, Toledo, Ohio.—p. 392.
Community Clinics and Public Health. W. De Kleine, Flint.—p. 398.
Venereal Disease in British Army. C. K. Valade, Detroit.—p. 402.
Surgical Treatment of Saddle Nose and Malignancies. F. Smith, Grand Rapids.—p. 413.
Diphtheria Following Operation for Tonsils and Adenoids. C. McClelland, Detroit.—p. 419.
Mumps Benefited by Ultra-Violet Rays. L. C. Donnelly, Detroit.—p. 420.

Effects of High Protein in Nephritis.—Two cases are presented by Squier in one of which there was a history of three separate exacerbations of nephritic symptoms following the addition of meat or meat extractives to the diet. In the second case under experimental conditions and consequently in a much more satisfactory manner the same reaction to protein was demonstrated. Following two forced meat meals the blood urea increased from 18 to 84 mg. per hundred c.c., the albuminuria increased from 6 gm. per liter to a maximum of 35 gm. per liter and the phthalein excretion for two hours was diminished from 40 to 28 per cent. There was a distinct increase in edema evidenced by a gain of 5½ pounds in weight in the course of two days, and in addition there were headache, nausea, lassitude and other symptoms of toxemia.

Botulism from Canned Spinach.—In Wells' case canned spinach was the source of the poison. In the treatment rest in bed and liquid diet were used from the onset, together with strychnin in doses of $\frac{1}{60}$ grain hypodermically every four hours as indicated by the apparent bulbar paresis. Difficulty in swallowing made it necessary to introduce medication and various forms of liquid nourishment into the stomach per Ewald tube for four days. Castor oil and enemas were apparently of little avail in securing bowel activity, but pituitary extract hypodermically accomplished satisfactory results on each occasion. Graham's antitoxic serum was however, the agent to which credit is given by Wells for effecting a cure in this case. The usual desensitizing dose of 3 or 4 minims was given, and then regular dosage of from 5 to 15 c.c. intravenously at intervals of from six to twenty-four hours during the subsequent four days. In all this patient had 115 c.c. of botulinus antitoxic serum over a period of four and one-half days, 45 c.c. of which were polyvalent and 70 c.c. type A serum; 97 c.c. were given intravenously and 18 c.c. subcutaneously. Definite improvement in swallowing, in speech, and in general appearance followed the administration of serum from the third day and at times temporary relief of the sense of constriction in the throat and of occasional difficulty in breathing was mentioned by the patient about an hour after the serum injection.

Botulism a Toxic Encephalitis.—Five cases are cited by Colver and he directs attention to the fact that botulism is essentially a toxic encephalitis affecting the nuclei of the pons and medulla and with rapid course, whereas endemic encephalitis is an infectious process affecting, as a rule, the cortex, the meninges or the basal ganglia of the upper cranial nerves and with more deliberate course. The two conditions may be confused.

Nebraska State Medical Journal, Norfolk

October, 1921, **6**, No. 10

Treatment of Diabetes Mellitus. A. D. Dunn, Omaha.—p. 297.
Functional Diagnosis. C. R. Kennedy, Omaha.—p. 302.
Passing of Family Physician. J. L. Sutherland, Grand Island.—p. 305.
Report of Female Infant with Double Inguinal Hernia, Prolapsed Tube and Ovary in Left Side; Operation; Recovery; Review of Literature; Reference to Fetal Development of Pelvic Organs. H. M. McClanahan, Omaha.—p. 307.
Plea for More Carefully Planned Tonsillectomies. C. G. Baird, Beatrice.—p. 310.
Some Practical Points About Tonsils. J. C. Tucker, Omaha.—p. 311.
Clinical Syndromes in Serous Meningitis Following Infectious Diseases. G. A. Young, Omaha.—p. 312.
Case of Methyl Alcohol Poisoning. F. W. Heagey, Omaha.—p. 316.
Civilian Surgeon's Story of Great War. H. W. Orr, Lincoln.—p. 319.

New Jersey Medical Society Journal, Orange

October, 1921, **18**, No. 10

Experience in Reconstructive Bone and Joint Surgery. R. E. Soule, Newark.—p. 309.
Electrocardiograph and Its Clinical Application. H. M. Ewing, Newark.—p. 316.
Pages from Medical History Collector's Notebook. W. S. Disbrow, Newark.—p. 319.

Cloudy Urine. B. M. Hance, Easton, Pa.—p. 322.
Medical Society. J. A. McCulloch, Nashville.—p. 325.
Two Cases of Foreign Bodies in Bronchus. H. B. Orton, Newark.—p. 326.

New Orleans Medical and Surgical Journal

October, 1921, **74**, No. 4

Malarial Hemoglobinuria. F. M. Thornhill, Arcadia, La.—p. 224.
Infection with Flagellates. E. C. Prentiss, El Paso, Tex.—p. 232.
Importance of Blood Sugar Estimation in Diagnosis and Treatment of Diabetes. F. M. Johns, New Orleans.—p. 244.
*Two Cases of Leprosy Cured by Anthrax Vaccine. J. N. Roussel, New Orleans.—p. 250.
Gallbladder Disease and Its Treatment. A. L. Levin, New Orleans.—p. 255.
Drug Addiction and Its Relation to Public Health. M. W. Swords, New Orleans.—p. 269.
Neglected Teeth of Children. J. R. Snyder, Birmingham, Ala.—p. 273.
Nerve Blocking Anesthesia. W. Johnson, New Orleans.—p. 279.
Radium Therapy. A. Henriques, New Orleans.—p. 283.
Fundamental Properties and Therapeutic Uses of Radium. C. H. Voss, New Orleans.—p. 290.
Acute Diffuse Gonorrheal Peritonitis Without Tubal Rupture. M. J. Gelpi, New Orleans.—p. 296.
Kidney Surgery Under Local Anesthesia. C. W. Allen, New Orleans.—p. 300.
Statistical Study of Three Thousand Cases of Mental Diseases. H. Daspit, New Orleans.—p. 305.

Leprosy Cured by Anthrax Vaccine.—One of Roussel's cases was a tubercular leprosy with numerous lesions on the face and many on the arms and legs and body, only a few of which were anesthetic. They were mostly tubercular infiltrations forming rather large tubercular masses from the fusion of contiguous tubercles. There were a very few macules which were mostly on her body. There was a pronounced leonine expression and the voice was husky. She was given 0.25 c.c. liquid anthrax vaccine on Feb. 25, 1919, and twice a week thereafter in gradually increasing dosage up to 1.05 c.c. until April 3, with no apparent effect except a slight sensation of chilliness which occurred about five or six hours after the injection. Two years later she was entirely well. The second case was one of macular-anesthetic leprosy. She was given anthrax vaccine every four days, from March 2 to April 15. Two years later she was entirely well. Roussel does not claim priority for this treatment. The use of anthrax vaccine in leprosy was first suggested by Dr. Campos of the state of Columbia, who in turn does not claim originality, but who does not disclose the name of the originator of the idea.

New York State Journal of Medicine, New York

October, 1921, **21**, No. 10

Interpretation of History in Surgical Affections of Right Upper Quadrant. C. G. Heyd, New York.—p. 357.
Physiologic Guides Underlying Operations on Stomach and Duodenum. W. W. Babcock, Philadelphia.—p. 362.
Acute Abdominal Conditions in Gynecology. G. W. Crile, Cleveland.—p. 366.
Accomplishments of Intracranial Surgery. C. H. Frazier, Philadelphia.—p. 369.
Development of Pulsating Exophthalmos in Blind Eye: Restoration of Almost Normal Vision Following Cure of Exophthalmos. J. L. Behan, Brooklyn.—p. 373.
*Virulence of Streptococci Isolated from Material Expressed from Tonsils. M. J. Gottlieb, New York.—p. 378.
Points of Contact Between Some Surgical Conditions and Cardiac Disorders. S. A. Levine, Boston.—p. 382.
Cooperation Between Central State Laboratory and Local Municipal and County Laboratories. A. B. Wadsworth, Albany.—p. 386.

Virulence of Streptococci in Tonsils.—Gottlieb feels certain that *Streptococcus viridans* can be isolated from the expressed materials of all tonsils, and that *Streptococcus hemolyticus* can often be isolated from the expressed substances. *Streptococcus viridans* isolated from tonsils is usually nonvirulent in moderate doses. In this series of twenty-seven cases only one out of twenty-four was found to be distinctly virulent. The association of *S. hemolyticus* with *S. viridans* does not seem to enhance the virulence of the latter. *Streptococcus hemolyticus* is virulent to rabbits in the great majority of cases. The relation of symptoms to the finding of virulent streptococci is not always present. The finding of virulent streptococci in the tonsils of a patient, may be an indication that the patient's resistance is such as to be sufficient to prevent an invasion of these organisms or that the infection has not been present long enough to have made its inroads on the tissues of the tonsil and the corelated lymphatics structures if any corollary may be drawn from the effect of streptococci on rabbits as compared to human beings.

Northwest Medicine, Seattle

October, 1921, **20**, No. 10

Local Anesthesia, Its Advantages, Indications and Technic. R. E. Farr, Minneapolis.—p. 267.
Operative Treatment of Old Ununited Fracture of Neck of Femur. E. O. Jones, Seattle.—p. 270.
*Dislocations and Fractures of Atlas. R. D. Forbes, Seattle.—p. 274.
Case of Fracture of Carpal Scaphoid. D. V. Trueblood, Seattle.—p. 277.
Treatment of Chronic Osteomyelitis. C. F. Eikenbary, Spokane.—p. 279.
New Bone Saw. M. Langworthy, Spokane.—p. 281.
Cecal Tuberculosis. Report of Cases. W. D. Read, Tacoma.—p. 282.
Tuberculosis Question from General Practitioners Standpoint. E. R. Ahlman, Hoquiam, Wash.—p. 287.
Migraine; Its Cause and Treatment. S. Wolfe, Salt Lake City.—p. 288.

Fracture of Atlas.—Forbes reports one case of fracture of the atlas, probably the posterior arch, complicated by a fracture of the odontoid process and a rotary subluxation, the result of striking the head forcibly on the ground in a fall. The diagnosis was made by the roentgen ray. Under general anesthesia an attempt was made to reduce the dislocation somewhat after the method of Walton. Examination of the pharynx at this time was easy and revealed in a modified degree the two prominences mentioned by Corner. Rotation to the left was not markedly limited, but to the right there was practically none. At the height of rotation to the left the patient suddenly stopped breathing, his pupils dilated, and he became cyanotic, giving every indication of an impending fatality. However, with rotation in the opposite direction and a hypodermic injection of camphor in oil he slowly recovered. His head was then supported on a plaster of Paris collar, molded over the shoulder and he was kept in bed for a few days. This support was removed in a couple of weeks and a collar of leather with a metal support fashioned as a rest for his head, permitting a moderate degree of movement. A report three months later was to the effect that, whereas some stiffness of the neck remained, he was free from pain and discomfort. A final report a year later showed him to be free from complications.

Ohio State Medical Journal, Columbus

Oct. 1, 1921, **17**, No. 10

Relief of Pain in Labor. W. Gillespie, Cincinnati.—p. 669.
Methods for Shortening Labor. A. J. Skeel, Cleveland.—p. 673.
Acute Torsion of Great Omentum: Two Case Reports. J. Price, Columbus.—p. 675.
Prevention and Control of Diphtheria. R. Lockhart, Cleveland.—p. 676.
Sterilization of Mentally Unfit. E. J. Emerick, Columbus.—p. 679.
*Use of Luminal in Epilepsy. M. L. Austin, Gallipolis.—p. 683.
Hyperplastic Sphenoiditis. C. H. Hay, Cleveland.—p. 686.
Tuberculous Meningitis. C. E. Shinkle, Cincinnati.—p. 692.

Luminal in Epilepsy.—Luminal has been used by Austin in one group of forty-nine epileptics for fifteen months with daily doses of from 1 to 5 grains at bed time. In cases of status epilepticus and mania, it has been used subcutaneously in doses of from 1.05 to 5 grains (0.1 to 0.3 gm.), or per rectum from 5 to 10 grains (0.3 gm. to 0.6 gm.). As to the results: In some cases the character of major seizures has been replaced by an atypical one, in which there is no tonic or clonic convulsion, but a furor of considerable violence, of irregular body movements, with loss or partial loss of consciousness. In other cases major seizures are controlled or replaced with minor ones in which loss of consciousness is sometimes incomplete. Austin does not herald luminal as a specific in epilepsy. As a matter of fact he cannot believe that it is. But it will ameliorate many cases, and to date, has given better results by far in essential epilepsies than any remedy so far used. Those patients who have been on luminal treatment are in as good physical and mental state as at the beginning of the treatment and many much improved. So far no pernicious results are recognized.

Oklahoma State Medical Assn. Journal, Muskogee

October, 1921, **14**, No. 10

Conservative Intranasal Surgery. H. C. Todd, Oklahoma City.—p. 257.
Malignancies of Eye. J. E. Davis, McAlester.—p. 262.
Pneumococcus in Eye, Ear, Nose and Throat. E. F. Davis, Oklahoma City.—p. 264.
Vitreous Opacities. W. A. Cook, Tulsa.—p. 267.
Focal Infection. C. B. Barker, Guthrie.—p. 271.

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Pennsylvania Medical Journal, Harrisburg.

October, 1921, **25**, No. 1

Meningococcus Infection: Summary of Recent Advances in Knowledge of Its Clinical Features. W. W. Herrick, New York.—p. 4.
Carcinoma of Rectum. D. B. Pfeiffer, Philadelphia.—p. 10.
*Etiology of Convulsions in Infants. A. G. Mitchell and W. Barber, Philadelphia.—p. 14.
Necessity of More Strenuous Efforts to Reduce Infant Mortality Rate. Z. R. Scott, Pittsburgh.—p. 17.
Case of Melanosarcoma of Choroid. E. Stieren, Pittsburgh.—p. 20.
Radium Treatment of Mouth and Throat. R. H. Boggs, Pittsburgh.—p. 22.
*Method of Distinguishing from Among Various Microorganisms Present in Patient, Those That Are and Those That Are Not Acted on by That Patient's Whole, Coagulable Blood. M. Solis-Cohen and G. D. Heist, Philadelphia.—p. 27.
Thyroid Gland and Exophthalmic Goiter. H. L. Foss, Danville.—p. 35.
Prenatal and Obstetric Care. J. S. Taylor, Altoona.—p. 39.
Case of Exfoliative Dermatitis. H. Stewart, Gettysburg.—p. 41.
Famine Dropsy or Hunger Edema. J. A. Nixon, London.—p. 43.

Etiology of Convulsions in Infants.—Etiologically convulsions in infancy are divided by Mitchell and Barber into several groups—those due to organic causes, those due to spasmophilia, those due to idiopathic epilepsy and those due to reflex causes. The majority of babies between 6 months and 2 years of age in whom no organic basis for convulsions can be demonstrated, can be shown to be suffering from spasmophilia. Spasmophilia is the real cause of most of the convulsions ordinarily classed as reflex. A certain proportion of infants who have convulsions are epileptic, but the number of infants who have eclamptic attacks. Occasionally an infant who has convulsive seizures is neither an epileptic nor a spasmophilic subject, and it is only in such a case that the term "reflex convulsion" is justifiable.

Distinguishing Organisms in Blood.—Cohen and Heist state that the whole, fresh coagulable blood of human beings possesses the property of destroying or inhibiting the growth of various pathogenic and nonpathogenic organisms; but this power against a particular organism is not always present at all times in every individual and, when present, may vary in degree. The absence in the whole blood of an individual of this bactericidal or inhibiting property against an organism is presumptive evidence of the susceptibility of that individual to infection by this organism. The presence or absence of bactericidal power against a particular organism in the whole, coagulable blood of any animal or human being can easily be determined in vitro by incubating the organism in the whole, coagulable blood of the individual for twenty-four hours; at the end of which time the organism will have disappeared or will be growing vigorously. When an organism present in a papule, pustule, abscess, urine, or aural discharge grows in the whole blood of the infected individual there is a strong presumption that it is the etiologic organism or a complicating organism, or is likely to become the latter. When an organism present in the respiratory passages, sputum or feces grows in the whole blood of an infected individual, there is a probability that it may be the etiologic or a complicating organism. When an organism present in an infected discharge, secretion or excretion, or on an infected area, disappears when planted in the whole blood of the infected individual, it may be fairly presumed to have no part in the infection. Its inclusion therefore in an autogenous vaccine may be regarded as unnecessary and possibly harmful.

Philippine Islands Medical Association Journal, Manila

May-June, 1921, **1**, No. 3

Ethical Aspect of Medical Advertisements. S. de Los Angeles.—p. 89.
Some Less Familiar Aspects of Parasitology. F. G. Haughwout.—p. 93.
*Iso-Agglutination Group Percentages of Filipino Bloods. C. Cabrera and H. W. Wade.—p. 100.
Cases of Eclampsia in Philippine General Hospital. A. Villarama.—p. 103.
*Cases of Infantile Beriberi Admitted to Philippine General Hospital During Year 1920. A. V. Tupas.—p. 108.
Weight of New-Born Filipino Babies. M. Tolentino.—p. 111.
Hymen Atresia: Report of Case. H. Acosta-Sison.—p. 112.
Gigli's Operation: Report of Case. B. Roxas and A. Villarama.—p. 114.

Iso-Agglutination Group Percentages of Filipino Bloods.—The results of iso-agglutination tests of 204 Filipino bloods made by Cabrera and Wade reveal distinct differences from the Moss group percentages of both Americans (Moffit's figures) and Chinese. The number of Group I (1 per cent.) is extremely low; that of Group II (14.7 per cent.) is roughly ten less than Chinese and forty less than American; that of Group III (19.6 per cent.) is practically intermediate between the American (6 per cent.) and the Chinese (34 per cent.), while that of Group IV (64.7 per cent.) is roughly twice as great as either of the others, two thirds of all specimens instead of one third. In other words, there is a much lower incidence of agglutinogen, and presumably—though this is not actually demonstrated by the technic used—a correspondingly greater incidence of agglutinins than in American and Chinese blood. Since practically two thirds of the Filipinos, being of Type IV, are universal donors, that is, have blood that is not agglutinated by the serum of any group, the chances for harmless transfusion with untested bloods are much better in Filipinos than in Americans or Chinese. A comparison of the percentages in the sexes shows no essential differences, though the numbers involved (sixty-nine females and 135 males) are too few for positive conclusions.

Infantile Beriberi in Philippines.—Out of thirty-six admissions to the hospital, thirty were under 3 months of age. The youngest patient was 14 days old and the oldest was 1 year and 5 days old; the latter belonged to the pseudomeningitic form. There were eleven deaths, or a mortality of 30.5 per cent. Roentgen-ray findings were noted in sixteen cases, fourteen of which showed enlargement of the heart to the right, and two to the left. Of the eleven fatal cases, a necropsy was made in five. The constant lesions found were dilatation of the heart, the right ventricle being about three times as large as the left; hydropreicardium; punctate hemorrhages in the lungs; passive congestion of the liver, kidney, and spleen; and degenerative neuritis of the vagus nerve.

Texas State Journal of Medicine, Fort Worth

October, 1921, **17**, No. 6

Endocrine Problems in Pelvic Surgery, with Special Reference to Vicarious Menstruation. C. Rosser, Dallas.—p. 290.
Endocrines in Gynecology. C. L. Maxwell, Myra.—p. 293.
Basal Metabolism and Precision Diagnosis in Thyroid Diseases. F. W. Hartman, Temple.—p. 295.
Use of Pollen Extract Made by Author in Treatment of Hay Fever. A. Woldert, Tyler.—p. 298.
Repair of Major Defects of Face. V. P. Blair, St. Louis.—p. 301.
Correction of External Deformities of Nose by Intranasal Route. S. Israel, Houston.—p. 302.
Tracheotomy and Intubation. O. M. Marchman, Dallas.—p. 304.
Evolution in Ear Examinations. R. H. T. Mann, Texarkana.—p. 306.
Various Aspects of Plague Situation in South. H. F. White, Beaumont.—p. 307.
Plea for Safe Water. J. D. Blevins, Austin.—p. 309.
Chlorination of Water by Use of Liquid Chlorin or Hypochlorite. E. G. Eggert, Austin.—p. 311.

West Virginia Medical Journal, Huntington

September, 1921, **16**, No. 3

Simple Goiter; Prevention and Treatment. J. W. Moore, Charleston.—p. 91.
Deductions Based on Recent Series of Operations for Goiter. S. McGuire, Richmond, Va.—p. 93.
Thyrotoxicosis. R. K. Buford, Hansford.—p. 100.
Thymus. S. J. Morris, Morgantown.—p. 105.
Endocrine Types of Dysmenorrhea. M. V. Godbey.—p. 108.
Radium in Non-Malignant Gynecological Conditions. C. J. Broeman, Cincinnati.—p. 110.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Oct. 15, 1921, **2**, No. 3172

*Pericarditis in Childhood. F. J. Poynton.—p. 583.
*Study of Some Factors Controlling Normal Sugar Content of Blood. P. J. Cammidge, J. A. C. Forsyth and H. A. H. Howard.—p. 586.
Anesthesia for Nose, Throat and Abdominal Surgery by Nitrous Oxid-Oxygen—C. E. Combination. H. E. G. Boyle.—p. 591.
Value of Spinal Anesthesia for Urgency Operations in Aged. A. H. Southam.—p. 592.
Operative Treatment of Hemorrhoids. C. G. Watson.—p. 593.
Ionization in Suppurative Otitis Media. T. B. Jobson.—p. 598.
Treatment of Asthma. G. H. Wildish.—p. 598.

Pericarditis in Childhood.—In an analysis of 100 fatal cases of suppurative pericarditis of all varieties Poynton found that 84 per cent. of the patients were under 4 years of age.

The rarity of this form of pericarditis as a solitary event is evidenced by the fact that there was only one such case in this series; fifty-four cases were associated with empyema and thirty-one with pleurisy or pneumonia. The diagnosis and treatment of pericarditis in children is discussed.

Factors Controlling Sugar Content of Blood.—Cammidge and his co-workers found that the liver contains a diastatic ferment, the action of which is reversible. In the fasting state the glycogenolytic activities of this ferment are very largely inhibited by (*a*) an antiferment formed by the pancreas, (*b*) the impermeability of the resting liver cells to sodium chlorid, (*c*) the reaction of the fasting blood and liver cells. As long as the pancreas and liver are functionally intact and a flow of blood with a normal reaction is maintained, glycogenolysis will be constant therefor and the sugar content of the blood vary within narrow limits. The entrance of food into the stomach causes a flow of acid, and when this acid reaches the duodenum a formation of secretin results. The secretin (*a*) stimulates the liver cells to produce bile, thus permitting the entrance of sodium chlorid, which activates the diastatic ferment; (*b*) causes the pancreas to pour out its alkaline secretin into the intestine to combine with the acid gastric contents, forming acid salts and sodium chlorid, which pass to the liver and increase the activity of the diastatic ferment; (*c*) interferes with the formation of the internal secretin of the pancreas, thus diminishing its inhibitory effect on glycogenolysis in the liver. Carbohydrates reaching the liver from the intestine or formed from proteins in the liver are converted into glycogen by the diastatic ferment, the efficiency of the process depending on the extent to which the glycogenolytic action of the enzyme is inhibited by the internal secretin of the pancreas. Unless the power of glycogen formation possessed by the liver is exceeded, sugar as such, or formed from starch in the intestine, does not pass into general circulation or play any direct part in the rise of blood sugar following feeding. This theory appears to account for the constant level of the normal sugar content of the blood in a fasting condition and to explain the variations produced by the ingestion of food. It also permits of a reasonable explanation of the changes occurring in disease.

Journal of Pathology and Bacteriology, Edinburgh

October, 1921, **24**, No. 4

*Pathology of Pneumococcal Infections of Human Lung. R. R. Armstrong and J. F. Gaskell.—p. 369.
*Digestion of Esophagus as Cause of Postoperative and Other Forms of Hematemesis. J. H. Pringle, L. T. Stewart and J. H. Teacher.—p. 396.
Viscosity of Syphilitic Serum. J. Holker.—p. 413.
*Standardization of Vaccines. J. Holker.—p. 419.
Group Agglutination of Gonococcus. S. S. Warren.—p. 424.
*Absorption from Peritoneal Cavity. C. Bolton.—p. 429.
*Blood and Blood Vessels in Guinea-Pig Scurvy. G. M. Findlay.—p. 446.
*Experimental Scurvy in Rabbit; Effects of Antenatal Nutrition. G. M. Findlay.—p. 454.
Heterophile Antigen and Antibody. T. Taniguchi.—p. 456.
*Blood Platelet Antiserum; Specificity and Rôle in Experimental Production of Purpura. S. P. Bedson.—p. 469.
*Case of "Erythema Nodosum;" Blood Cultures. E. Emrys-Roberts.—p. 477.
*Bacillus Proteus in Cerebrospinal Fluid of Typhus Fever. J. M. Anderson.—p. 478.

Pathology of Pneumococcal Lung Infections.—Armstrong and Gaskell assert that the pneumococcus invades the lung by three paths—the air passages, the blood stream and the lymph channels. The air borne infections include both lobar pneumonia and bronchopneumonia, the infection first settling in the terminal bronchioles in both instances. The factors determining the type which occurs are the virulence of the infecting organism and the resistance of the host; mechanical factors may also play a subsidiary part. The reaction of the lung tissues to the invasion is essentially the same in both forms of infection. No particular form of exudate can be claimed as characteristic of either; even in lobar pneumonia the alveoli are never all in the same stage of reaction. In lobar pneumonia the invading pneumococci are practically all destroyed by the fifth day, so that endotoxin ceases to be liberated. A possible explanation of crisis may be the final neutralization of endotoxin. Blood borne infections give rise to characteristic changes, which have been designated by the term miliary pneumonia. The infection spreads directly into the alveoli from the capillaries, and the bronchioles are only secondarily involved. One of the characteristics of this form is the absence of polymorphonuclear exudate. The lung changes are merely a part of the reaction to a general septicemia. Evidence is given of the spread of the pneumococcus in the lung by the lymphatic channels. This method is suggested as the explanation of certain chronic forms of pneumococcal infection, usually met with in children—for example, relapsing pneumonia. Experiments are recorded in which, by intratracheal insufflation, air borne infections, comparable to both lobar pneumonia and bronchopneumonia, have been reproduced in rabbits by varying the virulence of a single strain of pneumococcus.

Digestion of Esophagus Cause of Hematemesis.—In some cases the cause of postoperative vomiting of black material or hematemesis, Pringle and his associates state, appears to be digestion of the esophagus. Sixteen fatal cases have been observed by them in the last seven years. The characteristic vomiting has been observed most commonly from thirty-six to twenty-four hours before death. The condition of the esophagus may vary from superficial erosion of the mucous membrane to deep ulceration and perforation or extensive destruction of the tube and digestion of adjacent structures. Hemorrhages are always present in the wall of the esophagus and may be present also in the lungs and pleurae. In contrast with the state of the esophagus there is little or no digestion of the stomach, and the cardiac orifice is found closed. Microscopically the condition is a severe ulceration accompanied by more or less necrosis and solution of tissue and acute inflammatory reaction. The condition is not an agonal condition but one the nature of which can be diagnosed during life and which might be amenable to treatment. Healing reaction has been observed. It is not extremely rare.

Standardizing Vaccines by Opacity Method.—The opacity method of standardizing vaccines is in Holker's opinion the most suitable for the practical work of a pathologic laboratory, in that it is simple, accurate and rapid. He independently worked out the method described by Don and Chisholm, but discarded it as not being convenient nor sufficiently accurate. He therefore worked out another method of measuring opacity which has proved not only accurate and rapid, but being a standard in itself, has had the advantage of not requiring any other standard such as a suspension of barium sulphate. This method is described in detail.

Absorption from Peritoneal Cavity.—The mechanical and physical factors concerned in the process of absorption are discussed by Bolton. He states that the peritoneal cavity is drained principally by the diaphragmatic lymphatics into the mediastinal lymphatics passing through the sternal and anterior mediastinal lymphatic glands to the right lymphatic duct, and also through anastomoses in the chest to the thoracic duct. It is drained also by the diaphragmatic lymphatics into the cisterna chyli, but this path is quite subsidiary to the former. It is probably also drained to a small extent very slowly by the retroperitoneal lymphatics into the cisterna chyli. Particles easily pass between the endothelial cells with the lymph, the limit of size of such particles being approximately that of the red blood corpuscles of the animal used. Probably only the finest particles pass directly into the cisterna chyli and then very slowly. The drainage is accomplished by a purely mechanical process, the force being supplied by the respiratory movements. Colloidal dyes, which are indiffusible outside the body, pass through the peritoneum and capillary wall by diffusion directly into the blood, but slower than crystalloids. If colloids of a larger molecular weight are able to pass through, they must do so very slowly and in small quantity, but it is probable that molecules of the complexity of those of albumins are unable to do so. Poisonous or other substances, whether formed by bacteria or otherwise, which are indiffusible through an artificial membrane, may still be directly absorbed into the blood from the peritoneum, provided that they are not of great molecular complexity, otherwise they will be slowly absorbed by the lymphatics in accordance with their position in the peritoneum.

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Experimental Scurvy.—Findlay found that the absence of vitamin C from the diet of the guinea-pig leads to swelling and degeneration of the capillary endothelium; the flow of blood through the capillaries is retarded and extreme congestion occurs, and the formation and repair of the intercellular substance is interfered with. The stagnation of blood in the capillaries appears to be one of the factors leading to deficient oxygenation of the tissues and thus to death. When a pregnant rabbit is deprived of vitamin C throughout the period of gestation, Findlay says the offspring show hemorrhages at the joints and in the internal organs, although the mother remains healthy.

Blood Platelet Origin.—The view that the platelet arises directly from the polymorphonuclear leukocyte is not supported by finding. This finding is in support of the view first put forward by Bizzozero, that the platelet is an independent element of the blood. An antileukocyte (polymorph) serum is unable to agglutinate platelets (same species), and similarly an antiplatelet serum is without effect on leukocytes. Bedson's antiplatelet serum contains a specific antibody for platelets.

Micro-Organism of Erythema Nodosum.—In Roberts' case a blood culture developed an almost invisible dewdrop growth, consisting of minute discrete transparent colonies, composed of a delicate nonmotile, nonspore-bearing, gram-negative rod, scarcely more than 1 micron in length. This organism failed on further subculture, so that it was impossible to proceed in its identification. A provisional diagnosis of *B. influenzae* in the blood stream was returned.

Bacillus Proteus in Cerebrospinal Fluid in Typhus.—In both cases cited by Anderson examination of blood films for malaria parasites and spirilla of relapsing fever was negative. Agglutination tests with *B. paratyphosus* A, B and C were completely negative. In both a positive Weil-Felix with *B. proteus* × 19 was obtained. From the cerebrospinal fluid of each an organism was grown which appeared to be *B. proteus*. No agglutinating serum for *B. proteus* was obtainable, and the classification of the organism is incomplete, but the tests done seem to warrant the conclusion that from the cerebrospinal fluid of two cases of typhus fever with meningeal signs *B. proteus* has been isolated.

Archives Médicales Belges, Liége

August, 1921, **74**, No. 8

*Congenital Heart Disease. Taillens.—p. 705.
*Operative Treatment of Jacksonian Epilepsy. J. Voncken.—p. 722.

Congenital Disease of the Heart.—Taillens remarks that the congenital anomalies of the heart which seem to be so complex, in reality are not so. The single anomaly entails secondary malformations of different kinds. Stenosis of the pulmonary artery, for instance, compels the ductus arteriosus and Botalli's foramen to remain patent. The symptoms from this variety of secondary anomalies have a wide range. Congenital mitral stenosis may cause no appreciable symptoms for years until some special strain, as in military training, may reveal it. He outlines the clinical picture with the various congenital anomalies and the mechanism of the symptoms observed. Treatment and prognosis are not discussed.

Traumatic Epilepsy.—Four typical cases after war wounds are described, with the operative treatment applied. The results are not very satisfactory. The epilepsy did not develop until eighteen months after the traumatism in one case. Auvray found a subdural cyst in seventy-nine cases; it was above the brain tissue in all but thirty-three. In this latter group a focus of softening was evidently the primary lesion; in the forty-six others, there must have been some circumscribed serous arachnoiditis to start with. Voncken's experience has made him very dubious as to the ultimate benefit from operative treatment in cases of jacksonian epilepsy, although healing may proceed smoothly. The attacks may not return for many months—over three years in some of Tuffier's cases, and ten months in a case here reported, and they then returned every month. He remarks in conclusion that simple suture of the skin over the brain lesion seems to be preferred more and more rather than introduction of a foreign substance. De Martel said at a recent meeting, "I am afraid that some confrère may be reading us a few months or years hence a report on 'cases of jacksonian epilepsy aggravated by introduction of a sheet of foreign substance between the dura and the brain.'"

Archives de Médecine des Enfants, Paris

October, 1921, **24**, No. 10

*Immunization Against Diphtheria. P. Rohmer and R. Lévy.—p. 585.
*Diphtheric Paralysis Cured by Serotherapy. R. Labbé.—p. 612.
*The Schick Diphtheria Reaction. J. Comby.—p. 624.

Active Immunization Against Diphtheria.—Rohmer and Lévy give the results of injecting children with a mixture of diphtheria toxin and antitoxin. They advise having the free toxin very slightly in excess, and to give the injection between the ages of 6 and 18 months. The children are less sensitive then than later, but the sensitivity is alike in all. A second injection ten days later is sufficient. With the onset of the third year the sensitivity increases, and varies from child to child, and exploratory injections may be necessary to determine the tolerance. Children under 5 months are generally refractory. The state of the health, constitution or chronic disease do not affect the tolerance or the reaction. The latter consists in the development of antitoxin in the blood and in a specific sensitization of the tissues. They add that the Schick test is sometimes misleading, and is of restricted usefulness in the prophylaxis of diphtheria. The details in respect to seventy-three children are tabulated under various headings.

Diphtheric Paralysis Cured by Serotherapy.—In Labbé's six cases of tardy diphtheric paralysis, immediate and systematic treatment with antitoxin was begun and kept up until the paralysis had disappeared, regardless of the age and previous treatment. The children were from 3 to 13 years old and the paralysis had developed a month to six weeks after the onset of the disease. In a seventh case the serotherapy proved successful also in curing paralysis of the soft palate of four years' standing.

The Schick Reaction.—Comby urges that provision should be made by the local health authorities for applying the Schick test to aid general practitioners.

Bulletin Médical, Paris

Sept. 3, 1921, **35**, No. 36

*Intensive Iodin Treatment. Boudreau.—p. 711.

Intensive Iodin Treatment.—Boudreau has been treating tuberculosis with iodin for seventeen years, but did not publish his experiences until 1914. He is convinced that iodin is the direct, specific and heroic remedy for this disease, and that it should be given to the limits of tolerance. He adds that not only in tuberculosis but in all infectious diseases, iodin is the most harmless internal disinfectant at our disposal, with the maximum of action and ease of administration. The iodin is given in the form of the tincture added to the milk, wine, teas or other fluids taken during the day. Some of his patients, cured now for ten to seventeen years, had taken up to 400 drops of the tincture of iodin during the day, and these doses have been doubled and tripled in cases cured since 1914, as he gained confidence, he says, in the absolute harmlessness of this medication. It has been applied by Bonnefoy of Geneva in malaria, by some London physicians in chronic rheumatism, by Italians in cholera, by Manuell of Mexico in tuberculosis, and by Filliol and others in France.

Sept. 10, 1921, **35**, No. 37

*Desensitizing Autoplasmotherapy. C. Flandin and A. Tzanck.—p. 725.
*Pleural Effusions. F. Saint Girons.—p. 725.
Chenopodium in Treatment of Ascaridiasis. G. Léo.—p. 728.

Desensitizing Autoplasmotherapy.—Flandin and Tzanck draw the blood into a syringe containing a few drops of a 1 per cent. solution of an arsenical. Transferred to a test tube, the plasma can soon be decanted, and a subcutaneous injection of from 0.5 to 3 c.c. has the same effect as a desensitizing injection of the blood serum.

Pleural Effusions.—This is a lecture in the regular course, and it describes all the signs and findings that may aid in diagnosis and guide in treatment.

Sept. 17, 1921, **35**, No. 38

*Modern Treatment of Asthma. G. Lyon.—p. 739.
*The Arsenoxid in the Arsenicals. M. Pomaret.—p. 743.

Asthma.—Lyon remarks that there have to be predisposing and provocative factors before asthma can develop, and treatment has to be based on discovery and avoidance of the provocative factors, and efforts to reduce the predisposition. In addition to the usual array of measures, he advocates a course of spa treatment, especially with arsenical mineral waters (Mont-Dore and Bourboule).

Arsenoxid in Arsphenamin.—Some persons have ascribed certain by-effects of the arsenicals to the presence of an arsenoxid, and Pomaret has been studying its action on dogs. He found that it raised the blood pressure, the action very much like that of epinephrin. Hence it cannot be incriminated for the symptoms of shock, the nitritoid crisis, as the blood pressure drops in this.

Lyon Chirurgical, Lyon

July-August, 1921, **18**, No. 4

*Retrograde Strangulation of Intestine. M. Patel and M. Vergnory.—p. 417.
Complex Tumor of Breast. L. Bouchut and J. F. Martin.—p. 425.
*Painful Sacralization of Lumbar Vertebra. P. Japiot.—p. 437; Idem., A. Bonniot.—p. 445.
*Surgical Treatment of Painful Cystitis. Rochet.—p. 462.
*Remote Results of Maydl's Operation. E. Mugniéry.—p. 481.
*Jacksonian Epilepsy. R. Leriche and P. Wertheimer.—p. 492.

Retrograde Strangulation of the Intestine.—In the case described there was a W hernia of the cecum, with retrograde strangulation.

Radiotherapy of Pain from Sacralization of Vertebra.—Japiot reports success with roentgen-ray treatment in three cases of persisting pain from abnormal growth of the fifth lumbar vertebra. In a fourth case no benefit was realized. In the first case the lumbar neuralgia and sciatica had lasted for ten years in the man of 38, and they had been considered the result of an industrial accident. The pains and their exaggeration by movement had long incapacitated the man, and he was restored to active life by two exposures in the course of three weeks. In the second case the spinous process was not much enlarged, but it was enough to bring on violent sciatica, rebellious to all treatment, with edema in the legs. The last attack of sciatica had lasted for over six months, when the roentgen rays were applied. Improvement was soon evident and the pains subsided permanently after the third exposure in about six weeks. When last seen, four months later, the cure was still complete. In a third case there was return of the pain after the second irradiation, but it was banished anew by another exposure. In a fourth case the patient, a woman of 30, had long had shifting neuralgias, predominantly lumbar, but there was also slight fever towards night. The fifth vertebra showed the typical enlargement but no benefit was derived from the roentgen exposures. The rays in all the cases were applied to the last lumbar roots and the first sacral: from 1 to 3 H units. Japiot adds that there are now six cases on record of radiotherapy for painful sacralization of this vertebra, all successful but one, and it is probable that this may have been the primary cause of certain other sciaticas that have been benefited by radiotherapy.

Resection of Spinous Process of Fifth Lumbar Vertebra.—Bonniot gives an illustrated description of the simplest and safest mode of access to the root of the spinous process of the fifth lumbar vertebra when this has to be resected on account of its abnormal growth, and consequent pressure on nerves, etc. Hitherto the resection has been done rather blindly in the depths, but this study systematizes it.

Surgical Treatment of Painful Cystitis.—Rochet explains the different procedures required according as the pain comes from contraction of the body of the bladder or the sphincter or lower ureter. Removal of the hypogastric ganglions deprives the bladder mucosa of sensibility, and thus there can be no painful reflex contraction, while at the same time the primary painful contraction is arrested. The exact technic in men is shown in some illustrations both intraperitoneal and extraperitoneal. In two cases of advanced tuberculosis, bilateral resection of the hypogastric ganglion cured permanently the atrocious cystalgia. The bladder was paralyzed in consequence, but this was regarded as an insignificant infirmity in comparison. In two other cases he accomplished the same by merely resecting the main branches from the ganglion, just before they reach the bladder. This is a simple and harmless operation, he says, and the paralysis of the bladder was transient, although pollakiuria persisted, but there was no further pain. In three other cases the pain was restricted to the lower ureter, and he resected the nerve supply to this segment, with permanent relief. In one case, the pain was evidently due to an inflammatory process in the ureter left after nephrectomy, and a year after the latter he resected the nerves innervating this segment, putting an end at once to the attacks of pain. There had been no return when last seen two years later. Painful contraction of the neck of the bladder can be treated by forcibly stretching or incising the sphincter or by resection of nerves. He regards incision as the most effectual of these measures. The incontinence that follows for two or three weeks is transient. Complete relief from pain was always realized in his experience. He makes the incision in men with a double lithotome introduced through a buttonhole in the perineum; he opens the lithotome as he withdraws it, after turning the concave side up. The sphincter can thus be cut entirely through all its thickness. Another incision can be made with a bistoury—the whole forming a T.

Exstrophy of the Bladder.—Mugniéry cites 60 per cent. good remote results after the Maydl operation in Tholois' compilation of 58 cases and in Buchanan's 98. The ultimate results have been even better in some other cases he has compiled. This latter group includes 5 cases from Josserand's service with an interval since of from twelve to twenty-two years without any signs of pyelonephritis. In one of the cases pyelonephritis did develop immediately but soon healed spontaneously. One in this group of 5 was a child of 3 who succumbed to postoperative peritonitis. The immediate mortality of the Maydl technic is 26 to 30 per cent. but that of other technics seems to be even higher.

The Intracranial Pressure in Jacksonian Epilepsy.—Leriche here presents further evidence to demonstrate that the attacks of jacksonian epilepsy can be brought on at will in the predisposed by reducing the pressure in the cerebrospinal fluid or by inducing abnormally high pressure. The pressure in this fluid can be modified by intravenous injection of saline or distilled water. An extreme case is described in which the attacks and the psychic condition were seen to be unmistakably dependent on the state of the pressure, and fluctuated with it, the pressure left to itself being usually subnormal in the girl of 17. In another case, in a man of 40, the protrusion of the cicatricial tissue in the skull wound suggested hypertension as responsible for the attacks, and since enough spinal fluid was released to bring the tension to normal, there have been no further attacks, as also in another case.

Presse Médicale, Paris

Sept. 10, 1921, **29**, No. 73

*Technic for Suturing the Intestine. M. Robineau.—p. 721.
*Reconstruction of Lower Lip. A. Tzaico (Jassy).—p. 723.
*Hemorrhagic Purpuras. J. Mouzon.—p. 726.

Suture of the Intestine.—Robineau gives a profusely illustrated description of methods for suturing the bowel without leaving any dead space. The invaginated seroserosa suture always leaves a closed cavity, which invites trouble. This he avoids by suturing the mucosa over and over first, cutting off all redundant tissue to leave a smooth line, with nothing protruding. This deep suture takes up nothing but the mucous membrane; the outer suture, through muscle and serosa, leaves the mucosa unmolested. This technic takes time and patience, and clamps cannot be used with it, but this is compensated by the smooth healing after extensive operations on the bowel. A tedious gastrectomy or colectomy heals without by-effects.

Plastic Operation on Lower Lip.—Tzaico's seven illustrations show his method of reconstructing the lower lip by a flap from the front of the neck, twice reversed. The sides of the defect in the lip are cut vertical and the flap is cut with right angles to correspond, but fully three times longer than the gap to be closed. The flap is cut loose from the bottom and sides, the upper edge, just below the gap, being left attached to serve as the pedicle. The flap is then turned

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back over the lip and nose and is sutured to the lip. The long upper end is then turned down over the sutured part, thus bringing a fold of skin where the edge of the lip should be. The skin of the neck is drawn toward the center to cover the defect left, and the lower edge of the flap is sutured to this. In a case illustrated, the new lip answers its purpose and closes the mouth. He has improved on this on the cadaver by inserting a pedunculated strip of muscle between the two layers of the new lip; this would give more active control of the new lip.

Hemorrhagic Purpuras.—Mouzon expatiates on the importance of abnormal conditions in the blood platelets as the cause of the large group of true hemorrhagic purpuras, that is, those in which the blood clot does not retract although the coagulating time may be normal. Hayem called attention to the protracted bleeding time and abnormally small numbers of platelets, and others have published results of research on the pathology of the platelets which have demonstrated essential thrombopenia and thrombasthenia, and the cure of the hemorrhagic diathesis in a case of essential thrombopenia by splenectomy. He adds that there probably are as many varieties of these hemorrhagic syndromes as there are parts and combinations of parts in the mechanism of hemorrhage. In one the wall of the vessel is at fault, as in slow endocarditis; in another, the coagulating ferments are lacking, as in sporadic hemophilia; in others nothing can be found in the blood to explain the hemorrhagic tendency, as in scurvy. But the rôle of the platelets is primordial in all the purpura cases in which the clot does not contract.

Progrès Médical, Paris

Aug. 27, 1921, **36**, No. 35

*Influence of Dyspepsia on Nervous System. M. Loeper, Debray and Forestier.—p. 403.
Pathologic Ovulation in General. Dalché.—p. 405.
The Syphilitic Chancre in General. Queyrat.—p. 407.
The Question of Studying Latin. E. Callamand.—p. 409.

The Influence of Dyspepsia on the Nervous System.—Loeper and his co-workers have been calling attention to the direct absorption from the stomach not only by the circulation but also by the nerves. The pneumogastric and the medulla oblongata take up toxic substances from the stomach and suffer from their action. Their experimental research has confirmed the rapid impregnation of the nerve, its entire length, with formaldehyd and tetanus toxin injected into the stomach, as well as with water, salt, pepsin, etc. Here we have a new cause for the reactions of the vagus in the course of digestion, if any defect in the mucosa allows the toxic substances in the stomach to get to the nerve tissue. They have found pepsin along the pneumogastric and up into the oblongata—the first time, they say, that a product of the secretion of an organ has been discovered in the nerve of the organ. Possibly other nerves from other organs become impregnated in the same way with the special product of the secretion of the organ. If so, this might show the action of hormones and the synergy of glands in a new light. In conclusion, they reiterate the warning that in all cases with gastric lesions, substances with a special affinity for nerve tissue should be given very cautiously, if at all. They also reiterate their warning that pepsin must be regarded as something more than a mere digestive ferment.

Revue Franç. de Gynécologie et d'Obstét., Paris

August, 1921, **16**, No. 8

*Pelvic Fixation of Uterus. P. Gaifami.—p. 417.
*Catarrhal Jaundice During Lactation. C. Thélin.—p. 429.
Septic Complications of Uterine Fibromas. E. Goinard.—p. 432.

Technic for Fixation of Uterus.—The evils of ventrofixation of the uterus are illustrated anew in a case of dystocia from this cause reported by Gaifami, the fourth within a brief period. All these evils are avoided, he says, by Pestalozza's method of pelvifixation, which he describes. In 275 cases in which it was applied in the Rome clinic there was a complete or partial recurrence in only 7 cases, and of 121 women who passed through a pregnancy afterward, 107 were delivered at term, and there were only 5 premature deliveries or abortions—no more than the usual average. The pelvifixation had also a favorable influence on sterility. In 43 cases in which the operation had been done on this account, conception followed in 23. Pestalozza fastens the uterus in anteversion by means of a uterus-bladder serosa-muscle flap which is drawn up and sutured to the fundus of the uterus. A buttonhole is cut in the serosa at the upper limit of the inferior segment. This buttonhole is enlarged transversely across the uterus and for a short distance on the anterior peritoneal layer of each broad ligament. With the fingers, this fibro-muscular-serosa flap is worked loose up to a point level with the top of the bladder. A needle threaded with silk is then passed through the middle of the flap, about 0.5 cm. from its free edge, and the fundus is caught up with it. This brings the uterus up into anteversion, and other stitches are taken to fasten it, and some in the round ligaments. The anterior aspect of the uterus is thus covered with a double covering, and the anteversion can be more or less pronounced according as the flap is sutured farther along on the fundus.

Catarrhal Jaundice During Lactation.—Thélin concludes from his two cases of this kind that the bile salts and pigments may pass into the woman's milk, but that this does not contraindicate continuing the breast nursing. In one case jaundice followed four weeks after delivery and the infant refused the breast as it developed, although no bile products could be found in the milk. The jaundice was mild and disappeared in three days. In the other case, the jaundice followed six days after delivery under 5 c.c. of chloroform. The milk contained bile pigments but the child nursed normally throughout, and showed no effect from the mother's jaundice, which lasted into the third week.

Policlinico, Rome

Sept. 15, 1921, **28**, Surgical Section No. 9

*Hematoma from Middle Meningeal Artery. A. Cosentino.—p. 369.
Operation for Jacksonian Epilepsy. G. Giorgi.—p. 380. Cont'd.
*Loose Body in Hernial Sac. C. Oliva.—p. 397.
Inflammatory Tumor of Sublingual Salivary Gland. Cevario.—p. 411.

Extradural Hematoma from Lesion of Middle Meningeal Artery.—In connection with three cases of this kind, Cosentino discusses the mechanism and clinical picture of these hematomas. In one of the three cases the family refused any operation, and necropsy revealed a shirt-stud hematoma in and on the dura.

Loose Bodies in Hernial Sacs.—Oliva reports the discovery of a completely calcified loose body in a hernial sac, along with a loop of small intestine. There had evidently been a nucleus of fibrin. He has found records of twenty-one such cases in the literature, but only two others completely calcified. In Shaw's case the patient felt when the loose body slipped into the hernia, but Oliva's is the only instance of the correct diagnosis having been made before the operation.

Riforma Medica, Naples

Aug. 13, 1921, **37**, No. 33

*Pynephrosis with Calculi and No Symptoms. P. Marogna.—p. 770.
Suborbital Tumor. B. Rosati.—p. 773.
Another Vaccine from Turtle Tubercle Bacilli. L. Urizio.—p. 776.
*Ether in Pleural Cavity. L. Torraca.—p. 778.
*The Metabolism, Etc., in the Tuberculous. A. Ferrannini.—p. 779.

Pyonephrosis Without Symptoms.—Marogna reports three cases in which pyonephrosis had developed from the presence of calculi in the kidney but the symptoms did not point to the kidney. One patient was a previously healthy man who complained of vague malaise, and his abdomen enlarged, especially in the right upper two thirds, and there was albuminuria but no pain. He was losing weight, and the assumption was abdominal tuberculosis or a pancreas cyst. Even palpation and pyelography were misleading, but discovery of a droplet of pus at the right ureter mouth cleared up the diagnosis. An incision revealed a closed pyonephrosis with six calculi and 5 liters of thick pus. In the two other cases there were likewise no symptoms to call attention to the kidney, but the source of the disturbances was traced to the kidney. One patient was a previously healthy woman with seven children, and the other kidney showed signs of severe nephritis. The urine from this kidney soon cleared up after removal of the suppurating kidney. He compares with these

a number of symptomless cases from the literature. He removed the diseased kidney as the routine procedure.

Ether in the Pleura.—Torraca found that dogs were killed in a few minutes by injection of ether into the pleura in amounts which they bore with merely the development of narcosis when injected into the peritoneum. Hemorrhagic infarcts formed, and vast and tenacious adhesions in the animals that survived.

The Metabolism in the Tuberculous.—Ferrannini reviews the conflicting statements of various writers on the anomalies of the nutritive interchanges in the tuberculous. A progressive loss of weight is almost the only point on which they agree as a reliable sign of tuberculosis. With this, in 99 per cent., the subject is tuberculous, especially if young. He explains why pulmonary tuberculosis is less grave with a mitral defect, and discusses further the chilliness or heat felt by the tuberculous without actual change of temperature. Sudden fluctuations of temperature from emotions or indigestion or slight exercise have diagnostic import. The rectal temperature fluctuates more sensitively than the axilla temperature.

Archivos Españoles de Pediatría, Madrid

June, 1921, **5**, No. 6

*Syringomyelia in Children. J. M. de Villaverde.—p. 321.

Syringomyelia in Children.—De Villaverde comments on the rarity of syringomyelia in children without other manifest developmental defects. He adds, however, that cavities are sometimes found in the spinal cord of children dying from other diseases, and they may have had unsuspected syringomyelia. This may have been the explanation in certain cases of atrophy of muscles without known cause. The diagnosis of syringomyelia is difficult in children. In one case described, in a girl of 15, the first symptoms had been noted at 13½; pains in the left wrist assumed to be of rheumatic origin. They subsided in a few weeks but returned several months later, and persisted, with pain also in the hand and forearm, aggravated by moving the hand, and the hand grew weak and thin. A few months later the other hand developed the same set of symptoms, but less pronounced. The legs and sphincters were normal. Roentgenography showed decalcification of the bones of the carpus. Sedatives to relieve the pain and electricity to arrest the atrophy of the muscles failed to check the progress of the disease. He gives some charts showing the gradual extension of the sensory disturbances. The appearance of an isolated symptom and its persistence and the gradual sequence of symptoms should suggest the possibility of this disease. He queries whether syringomyelia is responsible in another case, in a girl of 12, who for three years has had periods of pains extending the entire length of the left arm from spine to finger tips, and sometimes, less severe, in the right arm. The pains disappear for months at a time, but then return as severe as ever. The child seems in excellent health and normal otherwise, and there is no tenderness along the spine or elsewhere. The motor disturbances are progressive with syringomyelia, while they are stationary when poliomyelitis is responsible for them, and there are no sensory disturbances. With polyneuritis the paralysis retrogresses more rapidly and completely than in the syringomyelia cases, while the sensory disturbances differ from those of syringomyelia, in which, besides, the course is progressive.

Revista del Instituto Bacteriológico, Buenos Aires

March, 1921, **2**, No. 6

*Typhus in Argentina. H. R. Kraus.—p. 1.
*Disinfection with Circulating Hot Air. R. Wernicke.—p. 41. Idem., M. V. Carbonell.—p. 49.
*Biologic Reactions in Typhus in South America. R. Kraus and J. M. de la Barrera.—p. 55.
*Bacteriology and Treatment of Typhus. Pérez Canto.—p. 101.
*Trypanosomas of Surra and Cadera. R. Dios and Oyarzábal.—p. 113.
*Research on Triatomas. E. del Ponte.—p. 133.
*Absorption of Snake Venom by Charcoal. María Angélica Catan de Houssay.—p. 197.
Influence of Sugar on Production of Diphtheria Toxin. A. Sordelli and R. Wernicke.—p. 231.
*Bovine Antitoxins. R. Kraus, J. Bonorino Cuenca and A. Sordelli.—p. 237.
*Normal Beef Serum in Treatment of Anthrax. R. Kraus and P. Beltrami.—p. 249.
*Paralysis in Consequence of Antirabies Treatment. R. Kraus.—p. 265.
Bacillary Dysentery in Argentina. H. R. Riganti.—p. 281.
Serum Tests for Plague. R. González and E. Bustingorri.—p. 289.
Present Status of the D'Herelle Coccobacillus Acridiorum Grasshopper Destroyer. R. Kraus.—p. 297.
History of Bacteriotherapy and Protein Therapy. R. Kraus.—p. 301.
*The Invisible States of Pathogenic Protozoa. R. Kraus, R. Dios and J. Oyarzábal.—p. 305.

Typhus in Argentina.—Kraus reports the campaign against typhus in the Salta province undertaken by the national public health service. The disease is endemic in this province, and provisions were enforced for the delousing and disinfection of travelers from the infected zone.

Disinfecting Apparatus.—Wernicke reports experiences with the Hartmann apparatus and Carbonell with circulating hot air, the latter having been found much more effectual than quiet air. They found the current of superheated air more destructive to germs than formaldehyd. The latter acts only on the surface, and is liable to injure tissues and papers, which is not the case with the superheated air.

Research on Biologic Reactions in Typhus.—Kraus and Barrera warn that the temperature of the guinea-pigs should be taken before any biologic tests are applied; otherwise the findings may be malinterpreted. They found the biologic reactions identical with those in Europe with virus from Argentina, Chile, and other strains.

Bacteriology of Typhus.—Pérez Canto relates that 8,400 persons died from typhus at Santiago de Chile in the two years ending September, 1920. He cultivated a diplococcus from some of the cases which, he says, seems to be the causal agent, and relates that a vaccine prepared with this diplococcus reduced the mortality to one third in the hospital in which it was used, in comparison to other hospitals. It also seemed to shorten the course of the disease.

Intracorpuscular Forms of Trypanosomes.—Dios and Oyarzábal describe an intracorpuscular form of the trypanosome of surra and of mal de cadera.

Triatomas.—In this second communication, Del Ponte reports the results of his research on various members of the triatoma genus of insects, besides the megistus responsible for the transmission of Chagas' disease. It is an iconographic description as there are forty pages of illustrations.

Adsorption of Snake Venoms by Charcoal.—The tests with cobra venom, and lachesis and crotalus venom showed that animal charcoal seemed to adsorb the substance in the venom causing the hemolytic action on the blood. After adsorption of the venom a substance was left in the liquid that is not hemolytic, although it binds the antihemolysin. It seems evident that only the combination of the substance that is bound by the charcoal and the substance that binds the antihemolysin have a hemolytic action; neither alone induce hemolysis. The absorption of the venom does not follow the usual law regulating such adsorptions.

Bovine Antiserums for Diphtheria and Tetanus.—The advantages of using bovine instead of horse antiserums are sometimes obvious, and the experiences related seem to indicate that serum sickness is less liable after bovine than after horse antiserums.

Normal Beef Serum in Treatment of Anthrax.—Kraus and Beltrami report additional experimental research which confirms, they say, the efficacy of normal beef serum in treatment of anthrax.

Myelitis After Antirabies Treatment.—Kraus reports the clinical and necropsy findings in a man of 62 who developed paralysis from myelitis after Pasteur treatment for a bite from a rabid dog. The treatment had been begun two days after the bite, and the paralysis developed about the thirteenth day of the treatment. He tabulates the data from the institutes at Rome, Lille, Madrid and elsewhere where no instance of paralysis from this cause has been known, and then lists the twenty-six institutes where there have been from one to thirteen cases, with a total of nineteen deaths. No instance of paralysis from this cause in a child is known.

The Invisible Phase of Pathogenic Protozoa.—A similar communication from Kraus and his co-workers was summarized in these columns recently, September 3, page 822.

Revista Médica del Uruguay, Montevideo

August, 1921, **24**, No. 8

*Thrombophlebitis of Sinus Cavernosus. F. Abente Haedo.—p. 333.
*Febrile Syphilitic Hepatitis. A. Alvarez Moulià.—p. 337.
*Antityphoid Vaccination in Uruguay Army. A. Anselmi.—p. 342.
Tuberculous Meningitis; Two Cases with Hemiplegia. Alice Armand Ugón.—p. 359.
Intensive Vaccine Therapy in Typhoid. A. Pereda Valdez.—p. 364.

Thrombophlebitis of Sinus Cavernosus.—The previously healthy man of thirty-three pricked with a needle a small furuncle in the right eyebrow region, and the same day he had headache and fever and vomited, and the next day the right eye protruded and a few hours later the other. Meningeal symptoms developed, with coma, and death the second day. A fatal termination seems to be inevitable in these cases. In Isola's five, the thrombophlebitis was secondary to otitis media, an abscess in the gums, neck, brow or eyebrow region; in Charlin's four and Alonso's three cases, none recovered. But Abente refuses to accept that these patients are inevitably doomed, and urges intervention. Alonso cured one patient with primary thrombophlebitis of the jugular vein, applying the Grunert operation. In conclusion he mentions that the pricking of some lesion with a needle, supposedly sterilized in the flame, is recorded in several of the case histories as having preceded the onset of symptoms.

Febrile Syphilitic Disease of the Liver.—Alvarez relates that the set of symptoms in the woman of 35 had been ascribed to gallbladder disease and then to amebic hepatitis, during eight months. No permanent benefit had been derived from treatment; then the discovery of a Wassermann reaction and treatment as for syphilis resulted in a complete cure in two weeks. The fever was the main symptom, with its evening rise and morning drop, and its irregular course, days of normal temperature being interspersed among days with fever up to 39.5 C. (103 F.). She had lost 22 kg. in weight during these months. The liver was enlarged. In one of Castaigne's cases the fever had persisted for twenty months. No effect was apparent on the fever from quinin, salicylic acid or any medication except that which is specific for syphilis.

Antityphoid Vaccination in the Army.—Anselmi is surgeon general of the Uruguay army and he relates that 40 per cent. of the army have been vaccinated against typhoid. He urges to have it made compulsory, and repeated after a two year interval. There have been thirty-four cases of typhoid in the army during the two and a half years since vaccination was introduced, including four cases in persons who had been vaccinated. The vaccinated all recovered; in only one of these cases was the diagnosis certain. Morquio advises against antityphoid vaccination in the midst of an epidemic in an endemic focus, telling of a physician who had his three other daughters vaccinated when a daughter contracted typhoid. They each developed the disease, the second daughter the day after the vaccination and the other two the day after they had been vaccinated a second time. They probably would not have developed typhoid, he thinks, if they had not been vaccinated. This evidently roused the latent infection.

Archiv für Kinderheilkunde, Stuttgart

Sept. 17, 1921, **70**, No. 1

*Action of Hypnotics on Infants. A. Eckstein and Rominger.—p. 1.
*"In Observatione de Lue." E. Steinert.—p. 23.
*Conservative Treatment of Diphtheria. P. Widowitz.—p. 30.
*Tuberculin Diagnosis in Children. K. Dietl.—p. 35.

Study of Respiration in Children.—In this third communication on the physiology and pathology of the respiration in children, Eckstein and Rominger report the results of administering chloral, urethane and hedonal to healthy and sick infants. This gives a basis, they say, for estimation of their effect in pathologic conditions. The modification of the breathing rate by the action of the narcotic is a sensitive index of its potency, by the length of the interval before the respiration center is modified by it enough to affect the breathing. The article is not concluded in this issue.

Congenital Syphilis.—Steinert states that the infants of 31 women with florid syphilis showed no signs or symptoms of syphilis while they were under observation, except a positive Wassermann reaction sooner or later in 44 per cent. No treatment had been given 17 of the women, and 23.5 per cent. of their infants reacted to the Wassermann test, and 33 per cent. of the infants of the 3 women given treatment before the pregnancy, and 36.3 per cent. of the infants of the 14 treated during the pregnancy. The treatment had presumably sufficed to prevent development of symptoms, but had not been able to prevent the changes in the serum which entailed the positive response. In 2 in this group the syphilis was a comparatively recent infection. One woman and her infant never showed the least sign of syphilis on repeated examination until the woman gave a positive response at the fifth test, but never afterward. When the infant was a few months old it presented unmistakable signs of congenital syphilis, although both mother and infant were persistently negative to serologic tests. Two other infants also showed the first signs of the disease when several months old. On account of the mother's syphilis, these children had been given an early course of inunctions, but it had not warded off the eruption at the age of 3 and 5 months.

Conservative Treatment of Diphtheria.—Widowitz relates that 25 per cent. of the last series of 145 cases of diphtheria were of the croup form, and 68 per cent. of these recovered without intubation or tracheotomy. The fatally toxic cases of diphtheria were almost always those that started in the nose, and had got great headway before the infection was suspected.

Tuberculin Tests in Children.—Dietl reviews the present status of tuberculin diagnosis, saying that a negative response to all the tests is the only really dependable outcome. In older children, the skin tuberculin test is not reliable alone; in dubious cases, it should always be supplemented with the puncture reaction.

Deutsche medizinische Wochenschrift, Berlin

Aug. 25, 1921, **47**, No. 34

*Hematin or Porphyrin in Stools. I. Snapper and J. J. Dalmeier.—p. 985.
A Steinach Rejuvenation Operation; Failure. K. Mendel.—p. 986.
Infected Hydronephrosis in Horseshoe Kidney. Karewski.—p. 989.
Roentgenographic Diagnosis of Colic Intussusception. Karewski.—p. 990.
Hypopituitarism Following Influenzal Encephalitis. Fendel.—p. 991.
Malignant and Leukemic Tumors Under Roentgen Rays. E. Saupe.—p. 991.
*Gastric Secretion with Gallbladder Disease. M. Behm.—p. 993.
Cancer of the Uterus; Favorable Results of Local Heat plus Radiotherapy. S. Weinstein.—p. 994.
Case of Interstitial Pregnancy. P. Eckhard.—p. 996.
Active Treatment of Pertussis. O. Meyer-Houselle.—p. 996.
Death from Roentgen Ray "Burn." E. Lick.—p. 999.
Development of Roentgen Plates in a Light Room (the Safranin Procedure). K. Glass.—p. 1000

Significance of Decomposition of Blood Pigment in Intestine into Porphyrin in Determination of Occult Blood in Feces.—Snapper and Dalmeier state that, after sufficient practice and if a good extraction method is used, the spectroscopic method is just as sensitive as the color tests. They prefer the spectroscopic method because other substances besides blood pigment may give positive color reactions. They describe the spectroscopic procedure they use: The stool is rubbed up in a mortar with an excess of acetone. It is then filtered and the remaining fluid is pressed out with the pestle. The dry substance is returned to the mortar and brayed with a mixture of one part glacial acetic acid and three parts ethyl acetate. After filtration, one part pyridin and two drops of ammonium sulphid are added to four parts of the filtrate. If hemochromogen is present, the spectrum of hemochromogen is produced, with the characteristic band between yellow and green. Another portion of the filtrate is spectroscoped without addition of other reagents. One may possibly find in the filtrate a spectrum of acid hematin, of chlorophyl or alkaline porphyrin. If to four parts of the filtrate one part 10 per cent. hydrochloric acid and a small quantity of ether are added, upon shaking, two distinct layers are formed. In the upper, ethereal layer the spectra of chlorophyl and hematin may be demonstrated; in the lower, hydrochloric-acid layer the two bands characteristic of acid porphyrin. The demonstration of porphyrin is thus very simple. They found that in a number of cases (16 per cent.) of gastric and intestinal carcinoma all the blood in the feces was decomposed into porphyrin; the color and the hemochromogen tests would thus be negative in such cases, and only a clearly defined

spectrum of porphyrin would reveal the marked blood content of the feces. The decomposition of the blood pigment into porphyrin is more marked in malignant than in benign affections of the stomach and intestine. Absence of the porphyrin spectrum testifies against malignant disease of the stomach or intestine. The reverse, however, is not true; the presence of such a spectrum does not necessarily prove the existence of a malignant growth.

Disturbance of Gastric Secretion of Hydrochloric Acid in Affections of the Gallbladder.—Behm reports, on the basis of a series of observations, that a disturbance in the hydrochloric-acid secretion of the stomach usually accompanies gallbladder affections, which fact is of significance as regards differential diagnosis, especially in chronic cases. After cholecystectomy and cholecystostomy the diminished gastric secretion of hydrochloric acid usually persists. Thus it would appear that the gallbladder does not usually regain its physiologic function even after a conservative operation. However, this disturbance of gastric secretion seldom causes any subjective symptoms of importance.

Medizinische Klinik, Berlin

Aug. 28, 1921, **17**, No. 35

*The Constitution and Tuberculosis. J. Bauer.—p. 1045.
Minor Surgery on Hand and Foot. M. Strauss.—p. 1047. Conc'n.
*Percutaneous Protein Therapy. C. Funk.—p. 1049.
Steinach's Theory of the Interstitial Cell. Kyrle.—p. 1050. Conc'n.
*Treatment of Auricular Fibrillation with Quinidin. G. Bock.—p. 1052.
Spirochetes and Fusiform Bacilli in Pleural Puncture Fluid. A. Luger and Draga Suparina.—p. 1055.
Albumin Urinary Calculi in Girl of 15. Meyer and Herzog.—p. 1056.
Appendicostomy in Colitis. H. Brossmann.—p. 1058.
Scabies and Furunculosis in Infants. Gatersleben.—p. 1058.
Oxynhausen Thermal Baths in Gynecologic Disease. Fenchel.—p. 1059.
Erysipeloid from Handling Spoiled Meat. A. Greussing.—p. 1060.
Malaria in Ex-Soldiers. P. Neukirch.—p. 1060.
Disturbances with Breast Feeding. K. Blühdorn.—p. 1060. Cont'n.

The Constitution and Tuberculosis.—This was the address to open the discussion on this subject at the recent tuberculosis congress in Germany. Bauer explains that the new science of immune biology enables us to comprehend the mechanism and course of the defensive forces of the organism, and thus the kind of battle it is waging with the invading tubercle bacilli, but why the battle takes such individual different forms, and why the outcome differs so materially can be estimated only by considering the individual constitution, and especially what he calls the constitutional ductless glands constellation. It seems to be established, he adds, that persons with a natural tendency to hyperfunctioning of the thyroid are less liable to contract tuberculosis than others. On the other hand, symptoms of hyperthyroidism may develop in the course of tuberculosis, which may be merely by-effects of some salutary defensive process. Hypogenitalism seems to have a favorable influence on tuberculosis; Warnekros has noted this with castrated women and Mauthner with castrated guinea-pigs. Bauer has never diagnosed a tuberculous pulmonary process in a eunuch but once, and this proved to be a mistake as all the symptoms soon subsided. The predisposed constitution is usually of the universal asthenia type, while the lymphatic and arthritic are less susceptible than the average. Their tendency to proliferation of connective tissue is a potent aid in the battle with the Koch bacillus. The closest resemblance between two individual constitutions that he ever noticed was in a pair of twins, a univitelline pregnancy. Both developed a mild torpid form of tuberculosis, one in the lungs and one in the foot. Both were physicians, and casual circumstances determined the location of the process, but the twin constitution determined the similar, benign course.

Percutaneous Protein Therapy.—Funck recalls that the production of antibodies is a secretion process, and that it is possible to stimulate this secretion in various ways. An effectual means to accomplish this is by inunction, his experimental and clinical experience having demonstrated that Witte peptone and casein in colloidal form, in a salve vehicle, are taken up by the skin and induce nonspecific immune processes in the organism. He sensitized the skin beforehand by measures to draw the blood to the skin and redden it (heat, sweating, mustard paste, etc). The effect of this percutaneous absorption of foreign protein is manifested in the leukocytosis (which may reach 21,000 by the third day after the inunction), and the increase in antibody production. The reports by various writers cited of instances of improvement in diabetes under the influence of an intercurrent disease led him to try this percutaneous protein treatment on some diabetics. He selected six diabetics presenting symptoms of toxic action which he ascribed to absorption of alien protein through the abdominal walls. Also some diabetics with symptoms indicating insidious disease in or around the gallbladder. Of these thirteen diabetics eight were so much improved by the percutaneous protein therapy that their tolerance was increased from two to sixfold for the same diet, modified only by larger proportions of carbohydrates. The combination of this nonspecific immune treatment with the utilization of the special immunity forces of the skin cells, he continues, is particularly beneficial when a disease is passing into a chronic phase. The forces of the organism are not powerful enough to throw off the disease without help. And the help supplied by the percutaneous treatment is often just what is needed, especially in rheumatic joint disease, gout, neuralgia, neuritis, colitis, pyelitis and proteotoxicoses. This harmless method of treatment is free from danger of anaphylaxis or paralysis. It differs from other parenteral protein therapy in particular by its utilization of the vital function of the skin in the production of antibodies. This is demonstrated by the effects of heliotherapy. Funck's work in this line dates from 1905 when he reported the increase of antibodies after parenteral administration of nonspecific drugs, etc. His work on diabetes was published in 1913.

Quinidin in Treatment of Arrhythmia.—Bock reports that auricular fibrillation was transformed to a regular rhythm in 45 per cent. of his 35 cases, and in 2 this effect has persisted for a year to date. In 2 others it lasted for over two months, but as a rule the effect ceased when the drug was suspended. In 2 cases quinidin restored the lost compensation, displaying greater efficacy than digitalis. He says that, with the necessary caution, quinidin can be regarded as generally harmless, and that it should be given a trial in cases of absolute arrhythmia, although he advises trying digitalis and other measures first. Peripheral atherosclerosis and hypertonia are special indications for the quinidin. Acute and recurring endocarditis he regards as a contraindication. With 2 exceptions the desired result was obtained with a daily dose of 0.8 gm. In about half the cases the drug induced by-effects which disappeared as the regular rhythm became installed: sensations of oppression, dyspnea, distress and tachycardia. The general condition was aggravated in 4 cases of mitral defect, in 2 of endocarditis and in 2 of multiple valvular defect. Gastro-intestinal disturbance was noted in 6 cases and "hot flashes" in several. One man had a cerebral hemorrhage after 2.2 gm. of quinidin, but the aphasia subsided almost completely in a few weeks; the pulse kept regular. In two women with heart block and auricular fibrillation the quinidin was followed by recurrence of the Adams-Stokes symptoms. One died several weeks later and nothing pathologic was found in the heart. The heart nerves or endocrine system must have been responsible for the peculiar set of symptoms. They had begun in 1919 with the Adams-Stokes syndrome, at first three times a week and later oftener.

Münchener medizinische Wochenschrift, Munich

Aug. 19, 1921, **68**, No. 33

*Trigeminal Neuralgia. E. Payr.—p. 1039.
Physiologic Treatment of Hallux Valgus. G. Hohmann.—p. 1042.
Theories of Color Vision. H. Koellner.—p. 1045.
Koeppe Physical Theory of Retinal Vision. Weigert.—p. 1047.
Etiology and Transmission of Moles. Meirowsky and Bruck.—p. 1048.
Experiences with Measles Convalescents' Serum. Zschau.—p. 1049.
Effect of Roentgen Rays on Tubercle Bacilli. H. Haberland and K. Klein.—p. 1049.
A Simplified Cutaneous Tuberculin Test. E. Feer.—p. 1050.
Self-Retaining Aorta Clamp for Practitioners. Hoffmann.—p. 1050.
Present-Day Mercury Preparations. L. Hauck.—p. 1051.
Treatment of Surgical Tuberculosis by Practitioner. Magg.—p. 1052.
The So-Called Spirochaetosis Arthritica. A. Stühmer.—p. 1053.

Trigeminal Neuralgia.—Payr emphasizes the importance of the correct order in the choice of therapeutic methods; namely, difficult and dangerous procedures must not be

employed until milder, harmless methods have been tried. The various methods must be chosen in such a manner that a method taken out of its order does not make the following ineffective, or at least of doubtful value. For technically easier methods with poor lasting results, more radical methods should be substituted, even though more dangerous, provided the prospects for a permanent cure are better. Internal treatment combined with the use of cathartics, morphin withdrawal, psychotherapy and antisyphilitic therapy (if there is the slightest suspicion of syphilitic infection) must certainly be tried as the first stage before any more radical methods are considered. Anesthetization and deep roentgen irradiation constitute the second stage, and alcohol injections and operation the third stage. Roentgen irradiation must precede not only alcohol injections but also peripheral extraction, since otherwise it has little prospect of success owing to scar formations about the nerve trunks. It must be admitted that alcohol injections make future surgical intervention more difficult owing to extensive scar formation, which obscures the topographic relationships. Peripheral extraction is indicated only when the neuralgia is confined to the frontal and supraorbital nerves. He states his reasons why he opposes its application to other branches.

Zeitschrift für urologische Chirurgie, Berlin

Sept. 24, 1921, **7**, No. 6

*Nephrectomy and Pregnancy. P. Theodor.—p. 187.
*The Verumontanum. J. Heller and O. Sprinz.—p. 196.
*Malformations of the Kidneys. G. B. Gruber and L. Bing.—p. 259.

Nephrectomy and Pregnancy.—Theodor has traced the later history of 31 nephrectomized women and found that they have had a total of 54 pregnancies with 40 viable children. Nephrectomy has been done in Kümmel's service on 95 women in the reproductive age, and in from 75 to 80 per cent. of the cases in which the kidney was removed on account of tuberculosis, a permanent cure was realized. Hence there seems to be no reason for inducing abortion when the woman becomes pregnant unless there are unmistakable signs that the remaining kidney is suffering. The 9 tuberculous women in Theodor's series bore 12 living children, to 9 abortions; and there were no signs of existing tuberculosis in any of the women. Israel has reported that he never had an instance of the other kidney becoming tuberculous in his series of 97 women nephrectomized for this cause. One woman in Theodor's series passed through a normal pregnancy two years after nephrectomy for hypernephroma, but died eight years later from metastasis or sarcoma. A nephrectomized woman should be supervised with special care all through her pregnancy, especially those with a history of tuberculosis.

The Comparative and Pathologic Anatomy of the Verumontanum.—Heller and Sprinz devote sixty-two pages and fifty-one illustrations to this study of the verumontanum under various aspects in man and animals. The complicated structure and the possibility of stenosis contraindicate partial resection, and this is all that can be realized by blind groping in the depths. They say that Rosen's recent description of nineteen symptoms that can be induced by "verumontanopathy" are merely signs of an infectious inflammation in the urinary organs in general plus signs of sexual neurasthenia in particular.

Malformations of the Kidney.—Gruber and Bing give nearly four pages of bibliographic references, set solid, and describe thirteen cases from the Mainz Pathology Institute in which the kidney was lacking or unduly small or unduly large or multiple. Of all the organs, they say, it is the one most subject to anomalies in shape and number and position. They warn that complete agenesia of one kidney is more probable when the sexual glands on that side are rudimentary or lacking. In Ballowitz' compilation of 213 cases of single kidney, it was abnormally large in 116; in five cases, abnormally small.

Zentralblatt für Chirurgie, Leipzig

Aug. 13, 1921, **48**, No. 32

Wound Infections, Especially Surgical Diphtheria. Wieting.—p. 1150.
Invagination of Small Intestine into Stomach After Gastroenterostomy. Harteri.—p. 1154.
Blood Changes After Removal of Spleen. H. Hauke.—p. 1156.
Increased Incidence of Congenital Talipes. A. Schanz.—p. 1157.
Case of Cyst in Arm. W. Uebelhoer.—p. 1157.
Use of the Saphenous Vein in the Radical Operation for Femoral Hernia. A. H. Hofmann.—p. 1158.
Aseptic Management of Stump of Appendix. P. Schneider.—p. 1159.

Aug. 20, 1921, **48**, No. 33

*Conservative Treatment of Renal Tuberculosis. E. Wossidlo.—p. 1182.
Treatment of Incontinence of Urine by Plastic Operation on Pyramidalis Muscle. M. Cohn.—p. 1186.
Ascarides Obstructing Gastro-Enterostomy. H. Bertram.—p. 1187.
Ileus Due to Ascarides, Cured by Operation. P. Strater.—p. 1188.
"Gastroptosis." A Reply. A. von Rothe.—p. 1189.
"A Contrast Medium for Pyelography." H. Rubritius.—p. 1191.

Conservative Treatment of Tuberculosis of Kidney.—Wossidlo reports that of 35 cases of unilateral tuberculosis of the kidney he operated in only 12. In the remaining 23 cases, treated with old tuberculin, he recounts the results during and at the end of the first nine months or, at the most, 3¼ years. At first a retrogression of the tuberculous processes was seen at the ureter mouth; the continual desire to urinate disappeared; the urine became clearer; the elements indicative of inflammation gradually became less, and after several weeks—two months at the earliest—a slight improvement in the kidney function, measured by the indigocarmin and phlorizin test, could be noted. Later, the subjective symptoms—the sense of fatigue, etc.—became less marked and the patients regained their capacity for work, some becoming so anxious to "pitch in" that they had to be restrained. After from six to nine months, a functioning of the kidneys could be established in all 23 cases that was fully up to normal. The ureteral orifice showed no further tuberculous processes; the urine was free from albumin and structural elements, and tubercle bacilli could not be demonstrated even by attempts at animal transfer. However, even after from six to nine months, the cure is not necessarily complete. There may be small closed tuberculous foci in the kidneys, from which no tubercle bacilli are eliminated, no tubercle bacilli being found in the urine. We may only regard the result as a cure when the negative findings above mentioned have been repeatedly verified over a period of years. He also discusses the indications for conservative treatment.

Zentralblatt für Gynäkologie, Leipzig

Aug. 13, 1921, **45**, No. 32

*Early Symptoms of Carcinoma of the Uterus. P. Zweifel.—p. 1126.
*Pneumoperitoneum in Gynecology. Benthin.—p. 1134.
Etiology and Prophylaxis of Habitual Abortion. Greil.—p. 1136.
Treatment of Abortion. D. Kulenkampff.—p. 1142.
Removal of After-Birth. F. Eberhart.—p. 1146.
Treatment of Abortion and Perforation of Uterus. Uthmöller.—p. 1150.

Early Symptoms of Carcinoma of the Uterus.—Zweifel discusses the significance of the various early symptoms of carcinoma of the uterus, which he enumerates as follows: (1) nodules situated at the orifice of the vagina, unless on examination they prove to be follicular cysts; (2) erosions that bleed when only slightly touched and do not yield promptly to treatment, or look suspicious from the start (a piece of the suspected tissue should be examined microscopically); (3) itching of the external genitalia is a suspicious sign deserving of some attention; (4) hemorrhage following coitus; (5) all postclimacteric hemorrhage from the genitalia must be regarded as highly suspicious; (6) irregular hemorrhages, even during the fertile period of life, should not be viewed lightly but should be followed by an examination, and (7) watery or purulent discharges may be the first symptoms of a carcinoma, and in carcinoma of the corpus uteri they are for a long time the only sign. He says that the root of the evil of the long disregard of cancerous growths by the laity is because they do not cause pain at first.

Pneumoperitoneum as Diagnostic Aid in Gynecology.—Benthin has employed pneumoperitoneum in several gynecologic cases but found that palpation gave him better diagnostic aid than pneumoperitoneum, so that he thinks the advantages of the latter method for the gynecologist are slight, at the best. In a few cases in which the differential diagnosis between genital tumor, intestinal tumor and tumor of the omentum does not become plain, even on examination under anesthesia, it may be advisable to have recourse to pneumoperitoneum. It proved to be quite useless for the

differential diagnosis of organic diseases of the pelvis. Even with elevated pelvis, the outlines were so indistinct that nothing certain could be discovered. The procedure, while not dangerous, is often unpleasant for the patient; in one case the pains lasted several days.

Zentralblatt für innere Medizin, Leipzig

Aug. 20, 1921, **42**, No. 33

Relation of the Effect of Alcohol on the Organism to the Blood Pressure Quotient. P. Engelen.—p. 658.

Tohoku Journal of Experimental Medicine, Sendai, Japan

Sept. 10, 1921, **2**, No. 2-3

*Quantitative Test for Pepsin. M. Takata.—p. 127.
*Relations Between Main and Co-Agglutination. VII. K. Aoki.—p. 131.
Classification of Dysentery Bacilli by Agglutination. K. Aoki.—p. 142.
Mutation Phenomenon in Paratyphoid Strain. T. Konno.—p. 159.
*Ether Hyperglycemia and Glycosuria in Rabbit. I. Fujii.—p. 169.
*Studies in Gastric Juice. II. M. Takata.—p. 209.
Research on Cetacea. Y. Morimoto, M. Takata and M. Sudzuki.—p. 258.
The Pigment of the Sea-Ear: Haliotis. T. Kodzuka.—p. 287.
*Changes in Alkalinity of Blood in Fever. M. Yamakita.—p. 290.

Dosage of Pepsin.—Takata avoids the disturbing precipitation in an acid medium by using fuchsin S for the colorimetric test for pepsin. The cut up fibrin is placed for twenty hours in a 5 per cent. solution of fuchsin S and is then passed through fine linen. The residue is rinsed repeatedly in hot water until the water shows no stain. It is then treated with a 0.5 per cent. solution of hydrochloric acid for some time, and is then rinsed with distilled water until the chlorin is eliminated. After pressing out the adherent water the colored fibrin is ready for use or can be kept in glycerin. The gastric juice to be tested has 1 gm. of the colored fibrin added to it, and it is left in contact for thirty to forty-five minutes at 38 C. It is then chilled with ice and is well centrifuged, and the supernatant fluid transferred to the colorimeter. The amount of fibrin dissolved depends on the duration of the exposure. (In French.)

Agglutination of Paratyphoid Group.—Aoki discusses the agglutinating relations between several members of the paratyphoid group. (In German.)

Ether Glycemia and Glycosuria in Rabbits.—Fujii tabulates the findings with fifteen rabbits kept under the influence of ether for from five to seven hours under varying conditions. (In English.)

The Gastric Juice.—Takata's article is devoted to research on the action and properties of the gastric lipase. (In English.)

The Dissociation Curve of the Blood in Fever.—Yamakita found in experimental fever and also in febrile diseases in man that the percentage saturation of the blood with oxygen decreases in fever. This lowering of the alkalinity of the blood is caused not only by the toxic breakdown of body tissue but by the rise in temperature itself. He found that the percentage saturation of the blood with oxygen increased in rabbits after intravenous injection of sodium carbonate, and this suggests, he says, that treatment as for acidosis might prove beneficial in fevers. The alkalinity declines with toxic fevers when the temperature is not very high; but with nontoxic (heat puncture) fever it does not decline unless the temperature is quite high. (In English.)

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Aug. 6, 1921, **2**, No. 6

*Sequels of Epidemic Encephalitis. E. A. D. E. Carp.—p. 684.
*Hilus Tuberculosis in Adults. J. Lankhout.—p. 691.
*Ice Cream Poisonings at Meppel. C. W. Broers.—p. 697.
Cure of Subphrenic Abscess with Dakin Treatment. Rath.—p. 700.
History of Invention of Meniscus Lenses. F. M. G. de Feyfer.—p. 705.
History of Invention of Percussion. J. J. van der Kleij.—p. 711.
*Distribution of Sugar in the Blood. S. van Crefeld.—p. 779.

Sequels of Epidemic Encephalitis.—Carp reports three cases of parkinsonian symptoms in young men after an attack of epidemic encephalitis. The condition has been stationary or has grown worse during the more than a year since.

Tuberculous Bronchial Glands in Adults.—Lankhout regards as instructive an area of dulness near the spine, usually to the right, with hilus tuberculosis. Also the lack of crepitation or its abnormal location. Shortness of breath on exertion also points to hilus tuberculosis, and pain in the chest is frequently mentioned. There may be a subfebrile temperature for weeks and months, not modified by bed rest. When the process is in the bronchial glands and adjacent lung tissue, percussion and auscultation may be negative. He warns that the hilus tuberculosis may occur without an apical lesion, but that an apical lesion practically never develops without the bronchial glands being involved. In some of his cases asthma and bronchitis accompanied the hilus tuberculosis; the derangement in the circulation readily explains them, but they render the differential diagnosis difficult. Rapid loss of flesh, familial predisposition, prolonged slight rises in temperature, weakness, and lassitude might suggest the possibility of hilus tuberculosis when nothing else can be found. The process can smoulder for years, flaring up occasionally. By neglecting roentgen examination, hilus tuberculosis is often mistaken for malaria, typhoid or gastric fever, weak heart or general debility. In conclusion, Lankhout warns that a tuberculous process centrally located is not a rarity, and that the saying, "No tuberculosis without physical signs in the lungs," is incorrect and misleading.

Poisoning from Ice Cream.—Over 200 persons developed symptoms suggesting paratyphoid poisoning at Meppel the afternoon of Sunday, July 10, 1921, and 5 died. The poisoning was traced to some ice cream, and the serum of 6 of the 10 persons examined agglutinated Gaertner's bacillus and did not affect any other micro-organisms. The source of the contamination of the cream could not be ascertained. In another instance of wholesale poisoning from cream, Broers succeeded in tracing the paratyphoid infection to a pool in the meadow. The cows drank the water and the paratyphoid bacilli passed into their milk.

The Free and the Bound Sugar in the Blood.—In the Society Proceedings are published in detail the results of S. van Crefeld's research on the form in which the glucose appears in the blood. He presents evidence that the blood corpuscles of man and rabbits are impermeable to glucose, while, at the same time, there is more glucose present than is found free in the serum. Part of the sugar in the plasma is bound in some way, and he is now seeking whether it is bound to the albumin, the phosphatids or the cholesterin. This conflicts with the general view that the glucose is merely dissolved in the serum. Few now accept Lépine's distinction between the free, "real" sugar and the bound, "virtual" sugar, although Bierry and Ranc in 1914 called attention to what they call proteidic sugar, that is, sugar derived by hydrolysis from the serum protein.

Hospitalstidende, Copenhagen

Sept. 7, 1921, **64**, No. 36

*Pseudosclerosis Without Liver Disease. A. Wimmer.—p. 561.
Spontaneous Pneumothorax in Adult Brother and Sister. E. E. Faber.—p. 573.

Extrapyramidal Syndromes.—Continuing his study of extrapyramidal syndromes, Wimmer analyzes a case of degeneration of the parenchyma in the cortex, with gliosis, in which the clinical picture was that of a slowly developing nervous affection in a young clerk, with disturbance in speech and gait and jerking movements, some stiffness and discoloration of the cornea, but there was no paralysis, no nystagmus and no sensory or bladder disturbance, and necropsy showed the liver apparently normal. This pseudosclerosis without changes in the liver does not fit into the frame of Wilson's disease or "torsion spasm" although, like these, some intoxication or autointoxication may have been instrumental in its development. The only thing suggesting such in this case was a few weeks of jaundice six months before. The first symptoms appeared at the age of about 18½. The jaundice may have been febrile, but there was no very severe gastrointestinal disturbance.

Sept. 14, 1921, **64**, No. 37

Technic for Film Roentgenography. V. Stockfleth and H. Waag.—p. 577.
*Syphilitic Hemisyndromes. A. Wimmer.—p. 584.

Syphilitic Hemisyndromes.—Wimmer describes here another extrapyramidal syndrome. In this case a syphilitic origin is unmistakable. The symptoms are paralysis of the left arm with choreiform movements, difficulty in speech, etc., the whole indicating disease in one half of the striatum.

Hygiea, Stockholm

Sept. 16, 1921, **83**, No. 17

*Virus of Epidemic Encephalitis in the Cerebrospinal Fluid. C. Kling, H. Davide and F. Liljenquist.—p. 566.

Presence of Epidemic Encephalitis Virus in Cerebrospinal Fluid.—The research reported by Kling, Davide and Liljenquist confirms that the virus of epidemic encephalitis seems to be a glycerin resistant, filtrable and uncultivatable, invisible, living micro-organism. They here describe experiences which demonstrate the presence of the virus in the cerebrospinal fluid. Four rabbits inoculated with the lumbar puncture fluid from a woman of 40 with a typical case of epidemic encephalitis, showed no symptoms and no macroscopic lesions when killed the thirty-eighth and fortieth days. The brain of two of the rabbits seemed normal under the microscope, but the two others showed pronounced and characteristic lesions typical of epidemic encephalitis, a round cell infiltration around the vessels in the pons, among the other changes. The photomicrograms from these rabbits resemble in every respect those from some human cases of epidemic encephalitis. It was most remarkable that such pronounced lesions could exist without the animals presenting appreciable symptoms. Five other rabbits were inoculated with brain tissue from these two, and two killed the twenty-fifth day presented the same microscopic characteristic changes. By inoculation of rabbits with lumbar puncture fluid we thus have a means of diagnosing epidemic encephalitis, but a negative result is not conclusive.

Norsk Magazin for Lægevidenskaben, Christiania

October, 1921, **82**, No. 10, and Supplements

*Erythema Nodosum and Tuberculosis. H. J. Vetlesen.—p. 689.
Juvenile General Paresis; Two Cases. S. Dahlström.—p. 710.
*Operative Treatment for Chronic Glaucoma. S. Holth.—p. 717.
*Goiter in Norway. S. Kjølstad.—p. 729.
*Danger for Young Children in Tuberculous Homes. T. Schram.—p. 740.
Fractures in Ski Sport. O. Usland.—pp. 1-76.
*Hemorrhage on Separation of Placenta. T. Hesselberg.—pp. 1-182.

Erythema Nodosum.—Vetlesen does not theorize but merely states that 13.3 per cent. of his 45 patients with erythema nodosum have developed tuberculosis, and the suspects bring the proportion to 26.6 per cent. On the other hand, 5.1 per cent. of his 350 cases of pleurisy had had erythema nodosum at some previous time, and 6 per cent. of 1,317 tuberculous patients. The work issues from the public hospital.

Treatment of Glaucoma.—Holth reports six new cases of a subconjunctival fistula developing from five months to a year after successful sclerectomy or iridocleisis for chronic glaucoma. His extralimbal tangential technic for sclerectomy he thinks would avoid this, as he explains.

Goiter in Norway District.—Kjølstad found goiter in 57.54 per cent. of 537 girls and 55.88 per cent. of 510 boys—all of school age in the Telemark district.

Danger for Small Children in Tuberculous Homes.—Schram found from 53.1 to 80 per cent. giving a positive tuberculin skin reaction of 500 children under 9 in homes where there was some tuberculous inmate. Among 168 children in homes in which the tuberculosis was particularly contagious, positive reactions were obtained in from 67.5 to 100 per cent. in all over 5. The experiences related demonstrate that it is impossible to preserve young children from the contagion when some member of the family has open tuberculosis.

Hemorrhage on Separation of the Placenta.—Hesselberg's 181 page monograph discusses the physiologic and pathologic hemorrhages, diagnosis and treatment. In 15 of the 18 cases of premature separation of the placenta with no signs of the intrauterine hemorrhage, only a small part of the placenta had become detached. In only 3 had most of the placenta separated, and one of these children was saved by cesarean section. Treatment with hemorrhage of this kind can thus usually be subordinated to the interests of the child. An increase in the blood issuing from the vagina indicates that more of the placenta has become detached. In one case this gave the signal for cesarean section, saving the child. In 11 cases with unmistakable signs of intrauterine hemorrhage, most of the placenta had become detached in 8 of the cases, and the 8 children were all dead. In the 3 other cases the contracted, tender and painful uterus indicated intra-uterine hemorrhage, but only part of the placenta had separated, and these 3 children were saved by prompt cesarean section. The details of 35 cases of premature separation of the placenta are given and compared.

Ugeskrift for Læger, Copenhagen

Sept. 22, 1921, **83**, No. 38

*Sarcoma After Foreign Body in Conjunctiva. P. Møller.—p. 1239.
Operative Treatment of Ozena. N. R. Blegvad.—p. 1243.
Quadruplet Birth: One Boy, Three Girls. K. Jensen.—p. 1249.

Sarcoma from Injury of Eye.—A papillomatous tumor was removed from the eye of a previously healthy man of 47 and a wooden splinter was found in it, probably from an injury two or three months before. A recurrence of the sarcoma was removed likewise, and the metastases in glands around the ear then subsided under roentgen ray treatment, but multiple metastases elsewhere continued to develop.

Sept. 29, 1921, **83**, No. 39

*Tetanoid Neuroses. P. Levison.—p. 1259.
*Fatal Bee Sting on Leg. A. Hansen.—p. 1268.
Sweat-Band Dermatitis. B. Pontoppidan.—p. 1271.
*Obstetric Turgidization of Placenta. G. Moltved.—p. 1272.

Tetanoid Neuroses.—Levison remarks that nowadays the diagnosis of hysteria or neurasthenia is made comparatively seldom as we have learned to recognize the incipient and abortive cases of organic nervous or endocrine disease. These used to be labeled neurasthenia or hysteria. He here describes some cases which establish that the parathyroid glands may be responsible for a similar incomplete or abortive set of symptoms. The clinical picture is that of a neurosis, but with a trend to tetany. In one of three such cases described there were signs of other endocrine derangement. He describes several groups with lassitude, restlessness, depression, insomnia and pains and paresthesias, and various objective findings, loss of weight, falling of the hair, goiter, polyuria, and the Chvostek, Erb and Hoffmann signs. The diagnosis is easy if these signs and symptoms are sought for. The disturbances are liable to be mistaken for mild exophthalmic goiter or myxedema, and in fact these tetanoid neuroses may be associated with either. Treatment as a rule is quite effectual, that is, calcium in large doses, best in the form of calcium chlorid, 2 gm. three times a day. This is kept up till the symptoms disappear which is usually not long. Possibly phosphorus might answer the purpose, but this drug is not taken very well by adults. Levison never saw any benefit from parathyroid treatment.

Death from Bee Sting.—The woman had been stung two or three times before and had presented a severer reaction each time. This time the sting on the left leg was followed in twenty minutes by respiratory paralysis. After revival from this, with artificial respiration and massage of the heart, profound coma followed and the woman died the fourth day with no signs of sepsis.

Turgidization of Placenta.—Moltved reports the successful application in two cases of Gabaston's method, namely, hastening the casting off of the placenta by injecting fluid into it through the umbilical vein when conditions call for manual intervention otherwise. The placenta was expelled after 400 c.c. or 1,000 c.c. of fluid had been introduced.

Upsala Läkareförenings Förhandlingar, Upsala

Sept. 1, 1921, **26**, No. 5-6. Festskrift. First half indexed, p. 1457

*Embryology of Optic Nerve, Etc. C. Lindahl and A. Jokl.
*Racial Intermarriages. H. Lundborg.
Development of Bile Capillaries in Rabbit. C. Löwenhjelm.
*Internal Nervous System of the Intestines. E. Müller.
Origin of the Sympathetic in Amphibia. E. Müller and S. Ingvar.
*Cystin Calculus in Bladder. C. T. Mörner.
*Hydrogen Ions of Vitreous Humor in the Fetus. J. W. Nordenson.
*Banti's Disease and Jaundice. G. Pallin.
*Clinical Import of Accessory Renal Vessels. G. Petrén.
*Cancer Cells in Blood Stream. U. Quensel.
*The Java Pithecanthropos. M. Ramström.
Retrogression and Retention in Embryonal Human Kidney. C. Sundberg.
*Sensibility in Friedreich's Disease. C. G. Sundberg.
The Eminentia Arcuata or Jugum Petrosum. I. Syk.
*Acute Typhoid Cholecystitis. G. Söderlund.
*Creosote Poisoning of Infant. I. Thorling.
*Duodenum Shares in Pylorospasm. I. Thorling.
*Tuberculous Bronchial Glands in Children. A. Wallgren.
Agglutination of Plague Bacilli. C. Kling and S. Hesser.
Roentgen Diagnosis of Perinephritis and Paranephritis. H. Laurell.

Closure of Fetal Ocular Cleft.—Lindahl and Jokl's photomicrograms trace the development of the optic cup, etc., in vertebrates. In this article they discuss fowls only.

Changes in Facial Types from Blending of Races.—One of the special features of the results of intermarriage between races seems to be that the face is long drawn out, especially the upper part of the face. Lundborg gives illustrations of a few types of the kind from different parts of the world, and urges study of these mixed races.

The Nervous System of the Intestines.—Müller gives a number of fine photomicrograms to illustrate his study of the nerves in the intestinal wall which seem to have a peculiar position in the autonomic nervous system, as Langley has pointed out.

Cystin Calculi in Bladder.—Mörner reports the third case of this kind to be published in Sweden, saying that it is one of the ten largest cystin calculi ever found. It was removed by a suprapubic incision and except for moderate enlargement of the prostate and chronic cystitis the man of 69 has had no further disturbance. The urine reexamined five years later shows no trace of cystin. Research is now under way to determine the prevalence of cystinuria in Sweden.

Hydrogen Ions in Vitreous Humor in the Fetus.—Nordenson regards the pupil membrane of the mammal fetus as an interesting object for study as it completely retrogresses at birth. The tail of the tadpole is almost the only other formation that undergoes this spontaneous retrogression. His research on the cow fetus indicates that the number of hydrogen ions in the vitreous humor keeps at about the same figure during fetal existence, a figure higher than that after birth.

Banti's Disease and Jaundice.—Pallin found moderate jaundice, a much enlarged spleen, moderate anemia of the secondary type and pronounced leukopenia in the unmarried woman of 28 who for two years had had digestive disturbances, with jaundice constantly except for two brief intermissions. Abdominal pains occurred at times, sometimes very severe. There was no indication of hemolytic jaundice, but examination of the spleen on removal showed the findings typical of the second stage of Banti's disease although jaundice is not an element of the Banti clinical picture, nor are digestive disturbances. Eppinger has described a form of pseudo-Banti's disease with both digestive disturbance and jaundice. The symptoms a year since the splenectomy confirm the assumption that chronic enteritis is responsible for the digestive disturbances and also for the changes in the spleen. After the splenectomy, the jaundice, the anemia and the leukopenia disappeared, but the abdominal symptoms persisted. The benefit from the splenectomy, however, amply justifies this operation in such cases.

Accessory Renal Vessels.—Petrén concludes from his own experience and study of the literature that about every fifth kidney has some vascular anomaly, and it is usually in the form of an accessory vessel. He describes four cases of different types, and warns to think of the possibility of disturbance from a supernumerary or otherwise abnormal vessel whenever there are repeated attacks of pain suggesting kidney colic or recurring pyelitis, and roentgenoscopy is negative, and the catheter can be passed smoothly into the pelvis, pyelography showing the latter dilated. There may be no disturbance in voiding urine, and the urine may be normal. As soon as the diagnosis of hydronephrosis from an accessory vessel is at all certain, the kidney should be exposed for examination without delay. Another danger from the accessory vessel is that it is liable to set up severe hemorrhage during an operation; a number of such cases are on record. In Lick's case the accessory vessel had been noted at the operation but had been assumed to be a fibrous band. The patient collapsed six hours after the nephrectomy, from the hemorrhage traced to the tear in this vessel. Petrén cites a number of such cases from the records, saying that his first case belongs in this category, the hemorrhage occurring as an abnormal vessel was torn during the drawing out of the kidney. It should always be borne in mind in operating on the kidney, even in merely drawing it out, that every fifth kidney has some anomaly in respect to its vessels.

Cancer Cells in the Blood Stream.—Quensel discovered cancer cells in the circulating blood in four cases of gastric cancer, in one of carcinoma of the lung, and one of a malignant hypernephroma, all with numerous metastases. These were the only positive ones in 50 cases of malignant disease in various organs, and he accepts this as proving that cancer cells often pass into the blood stream and are destroyed there in large numbers. This probably contributes considerably to the cancer cachexia. He took the blood for the purpose from the right auricle at necropsy.

The Java Pithecanthropos.—Ramström compares the Java pithecanthropos with the Aurignac skeleton, and shows that although the skull of the former is like that of the chimpanzee, its femurs are exactly like those of the Aurignac human being. His conclusion is that the latter originated in the Orient.

Sensibility in Friedreich's Disease.—Sundberg gives a detailed account (in English) of the sensory disturbances which were recorded in all of the ten cases of Friedreich's disease analyzed.

Acute Typhoid Cholecystitis.—Söderlund operated in four cases of acute cholecystitis in the course of the epidemic of typhoid at Göteborg, 1918-1919. In one of the cases the gallbladder complication developed four days after the woman had returned home from the hospital; in another case eight weeks after the beginning of the typhoid, a mild attack during the second week having spontaneously subsided. In the two others the cholecystitis developed early in the typhoid with grave symptoms from the first, and one died. In this case the whole brunt of the disease seemed to be borne by the gallbladder and liver throughout the entire course. The diagnosis at first had been acute recurring cholecystitis, with no suspicion of typhoid, until the exceptionally severe toxic condition was realized. Great improvement followed cholecystectomy but then the condition grew worse and the patient succumbed to the typhoid intoxication. As there were 1,900 cases of typhoid during the epidemic, he remarks that probably some of the cases of cholecystitis that will be encountered during the next few years may be of typhoid origin, in chronic carriers. He has already had a case of the kind as he describes, typhoid bacilli being cultivated from the gallbladder which contained a few gallstones, and there was a history of a few mild attacks suggesting gallstone colic in the last few years, but no jaundice.

Creosote Poisoning in an Infant.—The two months infant had been given creosote by mistake for a laxative, and the symptoms it developed resembled very closely those of Winckel's disease. The analogy was much closer than usual in sepsis in children. Thorling comments on this case that such experiences warn to think of the possibility of some chemical injury in obscure clinical pictures in children, instead of assuming always an infectious origin. This is particularly important on account of the peculiar susceptibility of young children to chemicals which have a destructive action on the blood. In the case reported the dose of creosote was not over 1 gm. at most, but the child died in two and a half days. There was little indication of local caustic action; the mouth soon cleared up and the child took the breast readily. There was only a little vomiting at first, and no bowel symptoms at any time; hemolytic jaundice, hemoglobinuria and leukocytosis were the main symptoms. By the twelfth hour the erythrocytes numbered only 1,800,000, the leukocytes 25,600.

Hypertrophic Stenosis of the Pylorus in a New-Born Infant.—In the case described by Thorling the upper duodenum felt hard and enlarged, the same as the pylorus. The pylorospasm evidently included the upper duodenum, and the necropsy findings confirmed this.

Tuberculous Bronchial Glands in Children.—Wallgren urges detection of tuberculous processes in the glands, and prompt treatment for all children in whom they are discovered. He says that Germany is on the right track. It has already 175 sanatoriums exclusively for children (for adults 168), with 14,300 beds. The Swedish legislature has appropriated funds to provide a children's department in a number of the sanatoriums. He devotes sixty-seven pages to discussion of the early diagnosis, etc.

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